institutional feeding in emergency

Health and Welfare Canada
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INSTITUTIONAL FEEDING IN EMERGENCY

Emergency Welfare Services Division

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FOREWORD

Emergencies or disasters usually happen suddenly and unexpectedly. One seldom knows in advance when and where they are going to occur or what their magnitude will be. But natural and man-made disasters such as floods, hurricanes, explosions and fires occur frequently enough that their possibility must be foreseen. Also, the possibility of nuclear war constitutes a continuing potential threat which cannot be overlooked in emergency planning.

All institutions — regardless of their size or location — should develop a capability to deal with all types of emergencies. Their preparations must include mutual cooperation within a total community plan, including emergency plans of local government and other institutions.

Planning for the safety and well-being of residents is an inherent responsibility of the administrators of special care facilities. The need for hospital emergency planning is recognized by the fact that, among other requisites for accreditation, a disaster plan is required.

This handbook deals with food service operations under emergency conditions. It has been prepared by Emergency Welfare Services Division, Department of National Health and Welfare as a planning and operations guide for institutional food service personnel who may be faced with various types of emergencies or disasters.

Many of the suggestions have originated from dietitians and other food service personnel from across the country who participated in emergency feeding courses conducted by the Emergency Welfare Services Division of the Department of National Health and Welfare at the Federal Study Centre at Arnprior. Additional information has been gathered from reports of actual disaster experiences, involving institutions.

It is hoped that this publication will contribute to improving the status of emergency preparedness in institutions across Canada.

ACKNOWLEDGEMENTS

Emergency Welfare Services Division wishes to express its appreciation to all who have contributed to the preparation of the handbook "Institutional Feeding in Emergency".

Helen C. Sackville, Emergency Feeding Officer, Department of National Health and Welfare developed the basic content, incorporating ideas from food service personnel in many different types of health and special care facilities.

Comments and suggestions were made on the draft material by the Emergency Welfare Services Federal / Provincial Advisory Committee.

Within the Department of National Health and Welfare, technical material was reviewed by experts in the areas of nutrition, infant feeding, and sanitation.

Elizabeth Rigby, Consultant in Dietetics reviewed the publication to assess its relevancy for present-day application, and made additional suggestions based on current developments and practices in institutions in Canada.

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INTRODUCTION

The principles outlined in this handbook are applicable to any type of institution, including hospitals and special care facilities. Guidelines and suggestions are general and should, therefore, be adapted to local situations.

PURPOSE OF HANDBOOK

The handbook is intended primarily as a guide to assist dietitians and food service administrators in developing a food service disaster plan for their own institution. Additionally, it is designed as a ready reference for action to be taken when disaster threatens or strikes.

SCOPE

The material is organized according to the major types of action which institutions may be required to take in emergency situations: (1) evacuation and relocation, (2) expansion (receiving institution), and (3) emergency survival in isolated or "stay put" situations. Realistic planning, however, takes into account that, in any disaster situation, the institution's response may involve more than one of these actions in varying degrees.[1]

FORMAT

The first part of the handbook outlines the *basic principles and preparatory steps* to be considered by the food service department in *planning* for the major types of emergency action.

A number of ANNEXES provide detailed information and guidance for *operational procedures* in typical emergency situations.

A *checklist* is included which can be used as a guide in preparing a specific food service disaster plan.

[1]For further information see "Emergency Planning Manual For Special Care Facilities" prepared by Emergency Welfare Services Division, Department of National Health and Welfare. Available from Provincial Emergency Welfare Services Organizations or Emergency Welfare Services Division, Department of National Health and Welfare, Ottawa.
Also "Hospital Emergency Planning Manual", available from Emergency Health Services, Department of National Health and Welfare, Ottawa.

ROLE OF THE FOOD SERVICE DEPARTMENT IN EMERGENCY PLANNING AND OPERATIONS

RESPONSIBILITY

The food service department of the institution is responsible for the development of flexible feeding plans which can be adapted quickly to meet a number of emergency situations in the most appropriate way. The assignment of responsibility and authority must be clearly established within the institution's organizational structure.

As food service affects all areas of the institution it is essential that the food service department have representation on the Emergency Planning Committee of the institution along with representatives from other departments. Good communications with other department heads and an awareness of each other's requirements and problems are necessary for the overall plan to operate smoothly and efficiently.

The food service representative should be at the administrative level of the department and preferably the head of the department.

OBJECTIVES OF INSTITUTIONAL FEEDING IN EMERGENCY

The objectives of each department must relate to and be coordinated with the overall emergency plan of the institution, with a built-in flexibility to take into consideration the nature and the possible duration of the emergency.

Basic overall objectives of the food service department should:

1. Provide for an immediate food service appropriate for the particular environmental conditions, taking into consideration:
   — type and amount of food — whether hot or cold;
   — availability of supplies, staff and facilities;
   — time factor.
2. Ensure the special nutritional needs of priority groups:
   — workers requiring supplementary nourishments, extra fluids and salt in high temperatures and humid environments;
   — infants and young children;
   — pregnant women and nursing mothers;
   — persons on modified diets.
3. Maintain a reasonable physical status of the patients or residents in an emergency continuing over an extended period of time.

TASKS INVOLVED

The objectives are achieved by the development of policies. They serve as guidelines for the development of procedures required to carry out the tasks involved. The tasks required to carry out the basic objectives relate to several general functional areas within the food service department and with other departments in the institution.

These tasks may be achieved by:

1. *Forecasting* — predicting the most likely emergency situations, anticipating problems, defining the scope and the limitations of the food service emergency plan.

2. *Planning* — establishing policies, priorities, methods, procedures, and means of acquiring resources.
3. *Organizing* — determining basic staff requirements and sources of additional workers; designating emergency assignments to appropriate personnel; organizing, scheduling, delegating and supervising work.
4. *Directing and Controlling* — continually assessing the situation, maintaining established standards during operations (nutritional, food quality and service, sanitation) within the constraints imposed by the emergency.
5. *Decision-Making* — flexibility in adapting procedures to suit the current situation when circumstances and resources change during emergency operations.
6. *Communicating* — making the food service disaster plan available to all key staff, informing staff and other department heads of changes in policy and/or procedure changes which may require implementation during the period the emergency plan is in operation.
7. *Coordinating* — integrating the detailed departmental plan and requirements into the overall institutional plan. This plan in turn will be coordinated with the total community disaster plan. In the planning stage, consultation with the local Emergency Measures Organization (EMO) Coordinator, and liaison with counterparts in other community institutions and appropriate agencies, is essential for the coordination of all aspects of institutional emergency planning and for mutual support and assistance during operations.
8. *Using Community Emergency Services* — The food service department should be knowledgeable of the services and assistance available from the community through the local EMO. The department's requirements from EMO must be incorporated into the Master Plan for the institution.
   Some of the municipal services available assist in obtaining:
   — additional transportation from the transportation service;
   — alternate utilities from the engineering service;
   — trained food service personnel, special equipment, and prepared meals as required from local food service establishments;
   — advice on emergency sanitation from the local or regional health department;
   — procurement of additional supplies and services when required from sources outside the immediate area;
   — information and public announcements through the mass media.
9. *Staff Training* — developing procedures in cooperation with other institutional departments to orientate and instruct staff members, new employees, and residents in responsibilities assigned to them in the emergency.

BASIC PRINCIPLES OF EMERGENCY FEEDING

IMPORTANCE OF FOOD IN EMERGENCY

The primary and immediate function of food is, in most emergency situations, psychological, providing comfort and reassurance and assisting in the maintenance of morale. Physiological needs, however, must receive early consideration in institutional feeding. Adequate nourishment is essential to maintain the well-being of residents and/or patients. It sustains staff and volunteers who are working long hours or who need a break in tense situations. Food satisfies hunger, and in addition helps in reducing irritability, promoting more effective decision-making and leadership under difficult or unusual conditions.

NUTRITIONAL BASIS FOR EMERGENCY FEEDING

The following principles and recommended standards have been adapted from previous publications of the Department of National Health and Welfare[2], and the Dietary Standard for Canada (1975) for application to institutional feeding requirements in emergency:

1. *Principles*
   a. The need for safe *water* in emergency is critical. At least one litre (about one quart) per person per day — more if possible — is essential for survival during the first few days. For infants it is a critical need within a few hours. The water must be free from contamination or it must have been made safe by an approved method.
   b. *Salt* replenishment is essential to replace the loss through body water excretions, sweating, etc. Three (3) grams per person per day (2.5 millilitres or about ½ teaspoon) is recommended as the amount to best conserve water within the tissues. This requirement is particularly significant when water is scarce, the temperature is high, and food is unavailable. It may be included in food or taken separately.
   c. About 400 Calories daily from carbohydrates, such as sugar or hard candies, has a physiological advantage to the body, especially when water is scarce.
   d. Feeding must be related to the work being performed or expected.
2. *Recommended Standards*
   a. *Adults*
      — Following the initial few days of an emergency, attention must be given to the adequacy of *Calories*. A target for provision of food, instituted as early in the emergency as possible, should be:
      — 1800 Calories per day for sedentary adults.
      — 1800-3000 Calories per day for those engaged in light to moderate work.
      — 3500 Calories per day for those engaged in hard physical work.

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[2] Nutritional Basis For Emergency Feeding recommended by the Canadian Council on Nutrition, 1957 (revised 1961), contained in Emergency Feeding Manual, EWS Division, Department of National Health and Welfare, Ottawa, 1970.
Also "The Nutritional Basis of Emergency Feeding" (mimeo), by Dr. J. E. Monagle, Department of National Health and Welfare, Ottawa, 1973.

— After two or three weeks other nutrients besides Calories must be considered. An average intake by adults of 30-35 grams of *Protein* per day presents no risk to health over a period of several months. This amount should be increased to 50-60 grams if the protein source is restricted to cereal products.

— If an individual is in good health, there is no need for concern over *vitamins and minerals* in general for a period of 4 weeks or less.

b. *High Risk Groups*

(i) *Infants and Young Children*

— Water requirement is critical within hours rather than days.

— Calorie requirements must be met quickly.

Infants should receive 110 Calories per kilogram body weight and 2-3 grams of Protein per kilogram body weight per day. *Children* from 1 year to 10 years should receive between 1200-2000 Calories per day and not less than one gram of Protein per kilogram body weight. At least 500 mg of Calcium per day should be assured for infants and children.

(ii) *Pregnant Women and Nursing Mothers*

This group should receive 2200-3500 Calories, 35-50 grams Protein, 1000-1200 mg Calcium, and 8-13 mg of Iron.

(iii) *Casualties and Ill*

— This group would be under medical supervision, but it can be assumed that all casualties will suffer some degree of shock requiring provision of additional fluid and soluble, readily assimilated carbohydrate. Burn cases will require higher fluid intake and supplementary protein, as will injury cases where there has been a considerable loss of blood. During recuperation, burn and hemorrhage cases should be provided supplemental amounts of iron rich foods.

— Those suffering from injuries will also require additional amounts of ascorbic acid, thiamin and riboflavin. These should be administered under medical supervision.

c. *Food Priorities*

If the food situation becomes difficult in emergency, a practical guide to priorities is to reserve all the protein, vitamin C, calcium and iron rich foods for the high risk groups.

The foregoing recommendations relate to healthy individuals with a satisfactory state of nutrition at the onset of an emergency situation. However, it must be stressed that as soon as possible, food intake should meet the recommendations of the Dietary Standard for Canada — or the more simplified interpretation in Canada's Food Guide.

GENERAL OPERATIONAL PRINCIPLES

The following general principles of feeding in emergency can be applied to different situations:

1. The first consideration is that all food served is *safe*. This implies clean, uncontaminated food prepared under the most sanitary conditions possible, and served quickly. Foods subject to rapid spoilage, bacterial contamination, or requiring careful or prolonged refrigeration should be avoided.

2. Emergency meals should be *simple* using familiar and acceptable foods. This rule of simplicity is recommended even though facilities and equipment are available for more elaborate feeding. For example, it is more important to serve some simple food quickly than to take time to organize a meal. Hot beverages, juices, soups, with simple snacks are useful foods for immediate feeding.
3. Priority should be given to foods that are easy to prepare, distribute, serve and eat and those which require minimum staff, fuel, equipment and eating utensils for service to the clientele.
4. Methods and procedures should be modified and streamlined under emergency conditions.

POTENTIAL EMERGENCY SITUATIONS AFFECTING INSTITUTIONS

Because of the wide range of threats involved, emergency or disaster situations do not fall readily into clear-cut categories. Those affecting institutions, however, can be classified in general terms as: *internal* or *external*. Their extent and magnitude may vary from an incident confined only to one particular institution, to a disaster which affects the whole community, or to a wide-spread emergency situation that would fill the institution to its greatest capacity. The possibility of a national emergency (nuclear war) continues as a threat which also must be faced by institutions.

Disasters/emergencies, generally, fall into the following main types:

- — Natural disasters (forest fires, hurricanes, floods, avalanches, ice storms, blizzards, tornadoes, landslides, earthquakes, etc.).
- — Industrial and transportation accidents (mine disasters, explosions, urban fires, structural collapses, air crashes, escape of hazardous materials, nuclear accidents, etc.).
- — Emergencies relating to essential systems (power failures).
- — Social, economic or political crises (strikes, civil disturbances, riots, bomb threats, sabotage, terrorist activities, war).

The impact of disaster on a community and/or an institution, the environmental conditions resulting, and the problems and needs created may be visualized more vividly by using some common emergency situations as illustrations. Consequently, the reasons for certain emergency actions which may be taken by institutions become more obvious and the types of food service problems which will be encountered evolve more clearly.

The following chart indicates some potential hazards that may be faced by an institution, the action that might be required in each situation, and some possible food service implications.

EMERGENCY SITUATION	POSSIBLE ACTION BY THE INSTITUTION	FOOD SERVICE IMPLICATIONS
INTERNAL EMERGENCY e.g. fire or explosion within the institution.	— Total or partial evacuation from threatened or affected areas and relocation to another part of the institution or to another pre-designated relocation facility. — Depending on its size, an institution may relocate to more than one facility.	1. Food services may or may not be affected: a. If the institution is only partially damaged, food service facilities may be physically intact and capable of functioning for remaining residents and staff within the institution, or for a nearby relocation facility.

EMERGENCY SITUATION	POSSIBLE ACTION BY THE INSTITUTION	FOOD SERVICE IMPLICATIONS
		b. If food service facilities only are affected, local feeding establishments or other institutions can give support by providing prepared food and equipment as required. 2. Food service facilities at the selected relocation site(s) should be assessed and planned in advance.
EXTERNAL THREATS TO THE INSTITUTION e.g. impending natural disaster such as a flood, forest fire, avalanche; a nearby industrial accident which endangers the institution, for example a fire or escape of hazardous materials; threat of nuclear war.	— Precautionary evacuation and relocation within the same community or to another community — possibly to a similar institution.	1. Food may be needed during evacuation and transportation to the new site(s). 2. Feeding arrangements should be planned and coordinated between the evacuating institution and the receiving institution. 3. Time permitting, some supplies and equipment can be taken from the evacuating institution to the relocation facility.
EMERGENCIES AFFECTING THE TOTAL COMMUNITY e.g. natural disaster, industrial or transportation accident, epidemic, etc.	— Expansion of accommodation and service areas, i.e. the institution functions to receive increased numbers of patients or residents from the community or area it serves. — Some evacuation may be required to free beds for casualties or other residents.	1. If the disaster is small in relation to the size of the institution, the food service department is least affected because the additional numbers can usually be handled with a minimum of effort. 2. If the disaster is a major one involving large numbers: a. the food service department may lose some of its functional space (e.g. a dining area used for extra cots and stretchers). b. food services will have to expand to new or improvised areas set up within the institution.

EMERGENCY SITUATION	POSSIBLE ACTION BY THE INSTITUTION	FOOD SERVICE IMPLICATIONS
		3. Utilities may or may not be affected.
EMERGENCY SURVIVAL SITUATIONS e.g. isolation due to winter storms, floods, power failures; internal or external strikes, civil disturbances, etc.	— The institution "stays put" and survives with minimum help from outside resources. — In a strike situation partial evacuation may be essential to reduce the work load.	1. Physical isolation may be further complicated by loss of water and power. 2. If power is disrupted, refrigeration and deep freeze facilities; food preparation, production, distribution, re-heat equipment and systems; dishwashing facilities; elevators, light, heat, and telephones will be affected. 3. An institution in these situations should not plan on assistance from community organizations or local food service establishments since they, too, may be experiencing the same difficulties and problems. On the other hand, institutions often have standby equipment which other food service establishments do not maintain. Therefore, they may be able to assist the local Emergency Welfare Services organization in feeding disaster victims. For example, an institution can prepare infant formulas for homeless or evacuee families in the community. 4. If isolation is anticipated for some length of time, a system of food priorities or rationing may have to be established.

EMERGENCY SITUATION	POSSIBLE ACTION BY THE INSTITUTION	FOOD SERVICE IMPLICATIONS
		5. Isolation from any cause (e.g. floods, impassable roads, transportation strikes, internal employee strikes) will immediately affect the availability of institutional staff. Outside strikes may eventually concern the institution also (e.g. ferry and truckers' strikes affecting delivery of supplies).
NATIONAL EMERGENCY e.g. threat of nuclear war.	— Preparation of a plan for the protection of patients/residents and staff against radiation from nuclear fallout, coordinated with the community survival plan.	1. Special austere feeding plans and procedures for survival in shelter must be prepared. 2. At least a two week supply of water, appropriate food, and other essential supplies should be in reserve.

PROBLEMS CREATED BY EMERGENCY SITUATIONS WHICH MAY AFFECT THE FOOD SERVICE DEPARTMENT

Each emergency situation may generate problems affecting the operation of the food service department. These can be summarized as follows:

1. *Loss of Internal Physical Facilities:*
   - — Damaged kitchen and/or other food service areas.
   - — Temporary use of food service areas for other emergency purposes.
2. *Increased Numbers to Feed:*
   - — Residents or patients.
   - — Staff.
   - — Volunteers.
   - — Others in the community, such as staff families (under some circumstances).
3. *Personnel Problems:*
   - — Alerting staff.
   - — Mobilizing staff (arranging alternate methods of transportation to and from the institution).
   - — Arranging identification.
   - — Shortage of key workers.
   - — Recruiting suitable volunteers.
   - — Re-assigning jobs.

— Instructing staff and volunteers.
— Staff fatigue as a result of long shifts.
— Emotional shock, fear, panic.

4. *Interruption of Community Services:*
   — Transportation services, affecting institutional personnel, delivery of supplies and equipment.
   — Internal and external communications (telephones, mass media).
   — Break down of support from community agencies such as food service establishments, catering companies, organizations with trained personnel and specialized equipment.
5. *Disrupted Public Utilities:*
   — Interrupted water supply.
   — Loss of electrical power affecting many food service operations.
   — Disrupted gas mains.
6. *Supply Problems:*
   — Destruction of usual sources of supply.
   — Loss of outside communications to get needed supplies.
   — Uncertain deliveries due to interrupted rail service, closing of major highways, damage to food processing plants and warehouses, etc.
   — Loss of supplies within the institution caused by flood damage, power failures and food spoilage.
   — Physical isolation of the institution.
   — Formation of picket lines in a strike situation.
7. *Sanitation Problems:*
   — Contaminated water.
   — Poor personal hygiene (scarcity of water).
   — Careless food handling practices (volunteer workers, stress and confusion).
   — Insufficient food storage facilities (inoperative refrigeration and deep freeze equipment).
   — Dangers in transporting prepared food to other locations (potential bacterial contamination).
   — Inadequate dishwashing facilities.
   — Disruption of waste and garbage disposal services.
   — Poor housekeeping practices and pest control under emergency conditions.
8. *Organization and Operation of Improvised Facilities:*

   Food service facilities may have to be improvised in an alternate area within the institution, in a facility selected as a relocation site, or in an emergency hospital. Problems relate to:
   — Physical layout.
   — Equipment and supplies.
   — Staffing.
   — Operational procedures.
   — Sanitation (facilities and utensils).
   — Support from municipal emergency services.

EVACUATION AND RELOCATION

Evacuation of patients/residents and personnel, necessitated by partial or complete damage to the building or the approaching threat of other hazards, is a possibility which institutions must consider in their disaster planning. The selection of a pre-designated site or sites in a safer area for relocation, therefore, becomes an essential part of this aspect of planning.

RELOCATION SITES

Possible relocation sites include:

1. Another area within the institution.
2. Suitable buildings in the community (e.g. arenas, church halls, schools).
3. Another or similar institution in the same community.
4. Another or similar institution in another community.
5. Homes. Patients or residents whose conditions permit can often be discharged to their own homes. Some residents in special care facilities may be placed temporarily in selected private homes. In such cases, the institution has a responsibility to ensure that food service and sanitation standards are satisfactory, and that any special dietary requirements are met.
6. Tents set up on the institution's grounds or nearby space (weather permitting) may have to be used to provide temporary accommodation for residents of certain types of special care facilities.

PLANNING GUIDELINES FOR THE FOOD SERVICE DEPARTMENT IN EVACUATION AND RELOCATION

Relocation will be less difficult if the institutional staff become familiar with proposed relocation sites. The food service department, therefore, requires sufficient advance knowledge of the facilities in order to plan an effective feeding service at the new site.

The following suggestions relate to various relocation plans:

1. *Relocation to Another Area Within the Institution*

   Some emergency situations or threats will require evacuation to a part of the institution where feeding services are not normally provided. Examples are staff residences, teaching areas, or unused parts of the institution. Extension of feeding operations, especially patient/resident tray service, under these circumstances will require considerable modification and improvisation. Similarily, a cafeteria may have to be set up temporarily in another location, such as an auditorium, large class room or staff lounge.

   Planning Steps Required for Relocation to Another Area Within the Institution

   a. Plan the layout of the selected space, indicating entrances, exits, traffic flow, and placement of equipment. Prepare a floor plan for inclusion in the food service plan.[3]
   b. Determine the method of transporting food to the area, taking into consideration the distance involved for the maintenance of appropriate food temperatures.

[3]See ANNEX A — Establishing An Improvised Food Service Facility, page 39.

c. Arrange for the use of elevators and lifts, if available.
d. Estimate requirements for equipment and supplies.[4]
e. Estimate personnel requirements and assignments.[5]
f. Arrange for heat maintenance equipment and electrical outlets.
g. Establish serving procedures.[6]
h. Specify dishwashing arrangements.
i. Select traffic route(s).
j. Determine requirements for direction signs (e.g. arrows, symbols, or key words to show where food services are located, for traffic flow, location of soiled dish and trash disposal areas).

2. *Relocation to a Non-Institutional Building*

By prior arrangement, buildings such as schools, arenas, warehouses, church or community halls can be made available to institutions for emergency relocation. Depending on the type and size of building selected, food service facilities will vary considerably. The following are some typical examples:

— Facilities that are adequate for both food production and meal service on the premises.
— Buildings with a minimum of utilities, but requiring slight modification or a few additional items of equipment.
— No cooking facilities on the premises but sufficient space to serve food that is prepared and brought in from another establishment.

Planning Steps Required for Relocation to a Non-Institutional Building

a. Survey the physical layout, utilities and equipment at the site and assess their adequacy in relation to the needs, numbers and composition of the population involved.
b. Plan an operational layout for emergency.
c. Pre-establish an emergency menu pattern,[7] and prepare an accompanying food order.
d. Determine supplementary equipment required.[8]
e. Make arrangements for acquiring the necessary equipment, food and other supplies. The Director of the Food Service Department should work very closely with the purchasing officer, advising on requirements and contacts with possible sources of supply in event of an emergency. Some items of equipment may be available from within the evacuating institution; others can be obtained on a short-term donation, rental or loan basis from other institutions or local food service establishments such as restaurants, hotels, catering firms, schools, or industrial cafeterias.
f. If adequate food production equipment is not obtainable, arrange for the delivery of prepared food at specified intervals from other institutions, local food service establishments, or from the evacuated institution itself if its kitchen facilities are still operational.

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[4]See ANNEX B — Suggested Equipment for Improvised Facilities, page 41.
[5]See ANNEX C — Personnel Requirements in Emergency Operations, page 44.
[6]See ANNEX D — Improvised Serving Arrangements, page 49.
[7]See ANNEX E — Emergency Menu Patterns, page 54.
[8]See ANNEX B — Suggested Equipment for Improvised Facilities, page 41.

g. Estimate staff requirements and assignments.[9] The type of menu and facilities will directly affect staff numbers and the classifications or types of employees required. Some relocation sites will have permanent staff who will become part of the emergency organization.
h. Establish emergency procedures for food storage, preparation, production, distribution, service, and sanitation.[10]
i. Determine alternate sources of infant formulas or establish emergency procedures for their preparation at the relocation site. Designate experienced institutional personnel to supervise this function in the alternate facility.[11]

3. *Relocation to an Existing Institution*

If relocation is to another existing institution, staff of the relocating institution will ordinarily join those of the receiving institution and operate under its authority and leadership. Authority must be defined by mutual agreement, clarified and understood in the planning stage.

By previous consultation, the Food Service Directors of the institutions involved can decide on the high priority items needed at the relocation site if circumstances permit the removal of some essential supplies and equipment. Useful items include: ingredients for infant formulas, disposable food service items, canned foods, dietetic foods, insulated urns, large cooking pots, ladles, tongs and large serving spoons.

Planning for Relocation to an Existing Institution

To carry out a smooth relocation of the food service department, key staff must be designated specific evacuation assignments such as:

— assembling, packing and shipping supplies to the new location;
— storing supplies and locating equipment on arrival at the new site;
— operation of food service at the new location.

4. *Feeding During Transportation to the Relocation Site*

Plans should be made for enroute feeding of residents/patients and staff if a lengthy evacuation trip is anticipated. If so, consideration should be given to the following:

— *Fluids.* A supply of fluids should include water in large thermal or other suitable covered containers, juices, soft drinks, cartons of milk. If the evacuation route is known in advance, it may be possible to pre-designate sources of drinking water along the route e.g. service stations.
— *Food.* Include items that can be eaten out-of-hand and safely and easily carried, such as bread, biscuits, cookies, cheese, hard cooked eggs, fresh or dried fruit. Pack in bulk or as box lunches.
— *Other Supplies.* Include can openers, bottle openers, disposable cups, drinking straws, paper serviettes, plastic garbage bags and ties.
— *Packing Supplies.* Designate staff to suitably pack the supplies for enroute feeding and to take them to assembly areas for movement with the patients/residents.
— *Distribution.* Institutional staff accompanying the evacuating group would be responsible for the enroute distribution of fluids, food and other supplies.

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[9]See ANNEX C — Personnel Requirements in Emergency Operations, page 44.
[10]See ANNEX I — Emergency Sanitation, page 68.
[11]See ANNEX H — Feeding Infants in Emergency, page 63.

EXPANSION

PURPOSE

The purpose of expansion is to increase the bed capacity as well as the service capability of an institution to receive and care for large numbers of casualties, or to accommodate patients or residents from other institutions. The first depends largely on the existence of suitable floor space, while the second is limited primarily by the availability of manpower and material resources.

The common procedure of doubling up in rooms and wards, and setting up beds in corridors would be extended in emergency. Additional space can be acquired by the use of lobbies, class rooms, waiting rooms, dining areas, and adjacent buildings.

When institutional expansion plans go into effect, the food service department must be prepared to:

a. Feed increased numbers of:
   — casualties or other institutional residents
   — staff
   — volunteers, and
   — in some circumstances relatives, friends and other personnel.
b. Provide food service to new functional areas and other service areas created by the institution to increase its service capability.

PLANNING GUIDELINES FOR THE FOOD SERVICE DEPARTMENT FOR EXPANDED FOOD SERVICE OPERATIONS

A plan for flexible phased expansion should be established in the institutional disaster plan (e.g. up to 10% increase, 10% to 25%, 25% to 50%, over 50%, etc.). These assumptions will guide the food service department in its planning. Since institutional food production and service areas are not normally used on a twenty-four hour basis, the feeding of an increased population may not present major problems. In some emergency situations, for example, the addition of a few staff and the provision of an additional snack bar(s) for staff and volunteers may be all that is required. In a maximum expansion situation, however, it will be necessary to reorganize the department for the most efficient operation, taking into consideration:

   — additional personnel
   — numbers of untrained volunteers
   — streamlined procedures.

The following suggestions can be adapted, as required, in planning for expanded and accelerated food service operations:

1. *Use of Physical Facilities*
   — Arrange for around-the-clock operation of the food service department during the emergency period.
   — Continue to use, if possible, the same physical facilities as normally used i.e. regular staff cafeterias, floor serveries, etc.
2. *Emergency Menu Patterns*
   — Discontinue selective menus.
   — Establish simple emergency menu patterns suited to the anticipated conditions, consisting of items normally on hand.[12]

[12]See ANNEX E — Emergency Menu Patterns, page 54.

— Include a menu pattern based on two meals per day as well as three meals. (Under conditions of maximum expansion when labour, equipment and food supplies may be limited, two meals only may be feasible).
— Arrange for a snack bar to be open on a 24 hour basis to provide supplementary nourishments.
— Increase vending machine operation.
— Prepare food and equipment lists to accompany the emergency menus.
— Alert suppliers.
— Notify suppliers immediately if additional supplies are required.

3. *Personnel*[13]
— Estimate numbers and types of additional personnel needed for maximum expansion.
— Plan for the appropriate use of key staff who may accompany an in-coming institution and define the authority under which they will function.
— Designate sources and methods of obtaining suitable volunteers.
— Plan for the assignment of volunteers to suitable tasks under the supervision of regular institutional staff.

4. *Supplies and Equipment*

Plans for supplies and equipment should take into account those items which an in-coming institution may be able to contribute.

a. *Food*
— Assess the adequacy, for emergency purposes, of normal food supplies in stock.
— Arrange for emergency food deliveries if needed (in conjunction with the institution's purchasing department).
— Give consideration to maintaining and rotating an increased inventory of foods suitable for emergency (e.g. instant and convenience foods) if these are not normally used.

b. *Dishes and Cutlery*
— Maintain a supply of disposable food service items sufficient for at least several meals.
— Establish the priority use of disposable food service items, in case they are in limited supply.
— Depending on the adequacy of stocks of dishes and cutlery in use and in institutional stores, extend their service by:
— utilizing all sizes of plates and bowls for one-dish emergency-type meals;
— reducing the number of cutlery items provided;
— organizing manual dishwashing areas to supplement regular facilities.

c. *Equipment*
— Make advance arrangements with the institution's engineering staff for proper maintenance of existing food service equipment, since some equipment parts may be difficult to replace in emergency situations.

5. *Food Production*
— Establish streamlined food preparation and cooking procedures.[14]

[13]See ANNEX C — Personnel Requirements in Emergency Operations, page 44.
[14]See ANNEX G — Food Production in Emergency, page 62.

6. *Meal Service*
   — Modify procedures for efficiency and speed, according to the facilities available.

   Some suggestions are:

   a. *Patient/Resident Tray Service*
      — Retain the usual tray assembly system as far as possible in an emergency, so as to avoid confusion.
      — Extend normal meal hours to allow time for food carriers to be replenished for the servicing of the increased numbers of patients/residents.
      — Simplify service by eliminating tray covers and converting to disposable tray service items.
      — Extend the supply of trays by more extensive use of over-the-bed tables.
      — Plan an alternate method of food delivery for patient/resident service in case elevators and other automated transportation systems are inoperable.
      — Involve staff from other departments who are familiar with the institution.

   b. *For Staff, Volunteers, and Ambulatory Patients/Residents*
      — Keep the staff dining facilities open on a 24 hour basis to service the increased numbers of personnel and volunteers.
      — Stagger meal hours so different groups will come at their designated times.
      — Plan simplified food service routines using cafeteria or buffet style.
      — Arrange for self-service where feasible.
      — Arrange for more than one serving line as needed.
      — Streamline serving counters.[15]
      — Arrange for vending machine service, if available.
      — Post direction signs as required.

7. *Modified Diets*
   — Establish, in collaboration with the medical staff, the essential types of modified diets to be used in emergency.
   — Base the modifications on the general emergency menu.
   — Specify the modification required for each type. Regular foods can be softened, liquified or otherwise modified to meet some particular requirements.
   — Develop a simple system for identification of modified diets.

8. *Infant Formula Preparation*
   — Continue to prepare infant formulas in an emergency, if it is the responsibility of the Department of Dietetics, using the same personnel.
   — Ensure the availability of formula ingredients and equipment, as well as other baby foods.
   — Arrange for the procurement of supplementary supplies of infant formulas from other institutions if existing facilities are inadequate.
   — Arrange for the purchase of ready prepared formulas.

9. *Community Assistance*
   — Arrange for support from community services and resources as required (e.g. additional equipment, personnel, etc.).
   — Keep a continually up-dated list of institutions and agencies capable of providing specialist services or equipment.

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[15]See ANNEX D — Improvised Serving Arrangements, page 49.

EMERGENCY SURVIVAL

Every institution should plan for situations where it may become physically isolated and cut off from other community services and agencies. Plans should include measures for the institution's "stay put" survival with maximum dependency on its own internal resources. Emergency situations of this type may be caused by disruption of essential utilities, isolation due to severe storms, floods, strikes or civil disturbances, or a national emergency where plans must be made for persons housed in the institution during a nuclear fallout period.

This section of the handbook includes planning guidelines for three possible types of emergency survival:

— in the event of disrupted utilities;
— in situations with constrained resources;
— in a nuclear environment.

PLANNING GUIDELINES FOR THE FOOD SERVICE DEPARTMENT IN THE EVENT OF DISRUPTED UTILITIES

When an institution's physical plant is damaged, its utilities may be disrupted; electrical failure is generally the first utility service to be disrupted. When power goes off, when gas service stops, when telephones become inoperative, when drinking water becomes contaminated, and when normal means of transportation and communication suddenly become impossible, the food service department is one of the first to be affected. This means no heat, no lights, no elevators, no refrigeration, no electrical machines or appliances. If the public water supply becomes contaminated, water cannot be boiled for drinking without gas or electricity. If the drinking water is contaminated and the electricity and gas off, it is impossible to prepare cooked meals in the institution's kitchen. However, with proper planning and training, the department can operate under the handicaps created by such emergencies.

1. *Water, Emergency Power, Fuel*

Plans relating to utility failures in the food service department must be coordinated with the plans for the institution as a whole:

— Plan alternate sources of potable water (e.g. storage tanks in the institution, nearby wells, dairies, laundries, bottled water).
— Arrange for the trucking of drinking water in large sterilized containers or tank trucks, and use steam kettles or other large receptacles to store it in the institution.
— Plan for the rationing and distribution of water within the institution.
— Plan for emergency lighting in the department's production and serving areas.
— Ascertain auxiliary power available in the institution — its capacity and the equipment that is automatically switched to emergency service and sharing of power among departments. An example of power sharing might be the operation of the dishwasher during times when the laundry is not using power.
— Designate the food service areas which have priority needs for auxiliary sources of power (e.g. deep freeze equipment for convenience food service systems).
— Know how to quickly acquire or stockpile supplies of: portable generators, liquid gas or other alternate fuels, gas conversion units, portable stoves; dry

ice to save food supplies; lanterns and flashlights for emergency lighting of strategic food service areas; and water purification tablets. The local Emergency Measures Organization must be involved in this aspect of the institution's pre-planning because it will be knowledgeable about sources of stand-by emergency equipment in the area.

2. *Emergency Supplies*
   - — Maintain a substantial inventory of emergency supplies over and above the regular supply, within the limits of the budget and inventory levels. (Particularly useful items are canned juices, canned and packaged foods suitable for cold meals; disposable plates, cups and eating utensils).
   - — Provide for the regular rotation of supplies subject to deterioration.
3. *Food Preparation*
   - — Plan emergency menus adapted to the availability of potable water, cooking and refrigeration facilities.[16]
   - — Make plans for improvised outdoor cooking in the event of power or fuel supply disruption. Simple equipment can be constructed on the institution's grounds for boiling water and the preparation of soups, beverages, and one-dish hot meals to supplement cold foods.[17]
4. *Internal Food Distribution*
   - — Arrange for personnel from other departments and institutional residents (as feasible) to assist in carrying trays or bulk foods to floors when elevators and other distribution systems are inoperative.
5. *Emergency Sanitation*[18]

   Advice on sanitation procedures to be followed in emergency should be obtained from community public health authorities. In the event, however, that institutional personnel have to make decisions on their own, instructions are included in this handbook for:
   - — purification of water from possible bacterial contamination;
   - — procedures relating to personal hygiene and food handling practices in emergency;
   - — protection of food from contamination;
   - — dishwashing procedures in the event that water is limited.
6. *Internal Emergency Communications*
   - — Coordinate the department's requirements for expanded internal communication (messengers, walkie-talkie battery operated units, bulletin boards, etc.) with the institution's Master Plan.
7. *Support From Community Emergency Services*
   - — Coordinate requirements with the institution's Master Plan for transportation, manpower, external communications, the mass media for calls to off-duty personnel, requests for supplies, etc.

PLANNING GUIDELINES FOR THE FOOD SERVICE DEPARTMENT IN ANTICIPATION OF CONSTRAINED RESOURCES

Emergencies such as storms, floods, internal or external strikes, sabotage, and other civil disturbances may isolate an institution from outside help and

[16]See ANNEX E — Emergency Menu Patterns, page 54.
[17]See ANNEX F — The Construction and Use of Improvised Feeding Equipment, page 56.
[18]See ANNEX I — Emergency Sanitation, page 68.

resources. Some employees may be stranded in the institution, others will be unable to report for work. If such eventualities can be anticipated or appear probable, plans should be made and specific actions taken which will help to ease the situation in the food service department when the emergencies do occur.

The following suggestions are based on the assumption that the institutional utilities are not affected by the emergency. If this is not the case, the suggestions in the previous section relating to disrupted water, power and fuel will apply.

Preparatory actions can include the following:

1. *Supplies*
   - — Acquire a reasonable inventory of canned, instant and easily prepared food items.
   - — Pre-arrange for delivery of food from suppliers who will be able to cross picket lines (in the case of an internal strike).
   - — Coordinate deliveries with the institution's Master Plan.
2. *Food Priorities*
   - — Establish priorities for the use of certain types of foods. (If food supplies are limited or delivery systems seriously disrupted, the medical and dietary staff may have to establish priorities for the use of certain types of food. Some examples are: all available milk supplies reserved for infants, young children and nursing mothers; protein foods for modified diets, etc.).
3. *Food Production*
   - — Prepare selected menu items, and freeze and store for future use.
   - — Plan simplified and streamlined procedures for food preparation, production, distribution and service (as suggested in other sections of this handbook) in the event of limited staff.
4. *Personnel*
   - — Determine what non-essential tasks can be curtailed.
   - — Plan for the reallocation of duties, using management personnel, able-bodied residents/patients and volunteers (if available), to the maximum extent possible, as replacements for regular staff during the emergency period.
5. *Infant Formula Preparation*
   - — Determine the source(s) of infant formulas. If the institution uses commercially prepared infant formulas on a regular basis and if these are unavailable during the emergency, use basic ingredients on hand to prepare a formula which will be suitable for most healthy infants.[19]

PLANNING GUIDELINES FOR THE FOOD SERVICE DEPARTMENT IN A NUCLEAR ENVIRONMENT

In this situation, planning involves the selection of a suitable, adequately protected area in the institution and the stocking of this shelter space with water, food and other essential supplies for a minimum period of two weeks. In a national emergency the entire country would be subject to emergency measures regulations; consequently institutional planning for this eventuality must be kept within the framework of emergency government with centralized authority and control.

Fallout Shelter Feeding

The food service department should have an estimate, insofar as possible,

[19]See ANNEX H — Feeding Infants in Emergency, page 63.

of the number of persons whose needs must be met in the shelter area. With this information, the amount of water, food, and equipment required can be calculated.

1. *Nutritional Requirements*

Foods for survival in a fallout shelter for a period as short as two weeks need not be planned for optimum nutrition. The survival of healthy adults under these conditions is not dependent upon either an adequate balance of nutrients or even on sufficient calories as compared to accepted normal standards. The source of calories, therefore, is not as important as providing familiar foods and beverages to maintain morale, ease tension and satisfy hunger.

2. *Water Requirements*

— Allow at least 4.5 litres (about one gallon) of water per person per day for all purposes. At least one litre (approximately one quart) should be reserved for drinking. Juices and soft drinks can substitute for some of the water allowance.

— Limit coffee, tea and cocoa because of their diuretic properties, if potable water is in short supply. In this situation a weak infusion of tea would be the best choice.

— Keep clean covered water containers in the shelter area ready for filling.

— Plan to make full use of the institution's water storage tanks and piping system.

— Establish procedures for emergency purification of water.[20]

— If the water supply is contaminated by radioactivity, special methods are required for treating the water and trained personnel must provide instructions for this treatment.

3. *Food Supplies*

— Maintain an adequate inventory of suitable canned and packaged foods, and arrange for their assembly, movement and proper storage in the shelter area when needed. Select items with the following characteristics:
  — good storage qualities without refrigeration;
  — palatable when eaten from the can or package without further preparation or heating;
  — creating minimum odour in a confined space;
  — completely edible to minimize garbage disposal;
  — easily served and distributed;
  — readily usable in regular meals of the institution for replacement purposes.

— Arrange for essential ingredients for infant feeding if required (processed milk or commercial formulas, sterile water, sugar, canned baby foods).[21]

4. *Equipment*

— Make plans for a source of heat for boiling water and heating food, also for a means of refrigeration if possible. Examples of equipment items which may be obtainable within the institution are beverage urns, hot plates, portable stoves, and containers for heating water.

— Assemble a kit of basic equipment, pack in a suitable container, and keep in readiness for removal to shelter. Include the following:
  — Water purification solution or tablets

[20]See ANNEX I — Emergency Sanitation, page 68.
[21]See ANNEX H — Feeding Infants in Emergency, page 63.

— Can and bottle openers
— Large cooking pots with covers
— Kitchen knives
— Measuring utensils
— Dipper
— Ladles
— Large pitchers
— Tongs
— Long handled serving spoons
— Rubber spatula
— Detergent
— Dish sanitizing compound
— Dish pans
— Hand soap
— Paper towels
— Hand basins
— Disinfectant
— Large covered garbage cans for wet garbage and waste liquids
— Plastic garbage bags and ties
— Cord
— Dish cloths and cleaning cloths
— Household cleanser
— Pot holders
— Scissors
— Felt tip markers
— Aluminum foil
— Wax paper
— Infant feeding equipment (bottles, nipples, caps, paper cups, sterile spoons).

5. *Eating Utensils*
   — Arrange for a sufficient quantity of disposable plates, cups, spoons, knives, forks, and paper serviettes.
   — Mark cups with each person's name. They can be re-used by the same person if it becomes necessary to conserve supplies.
6. *Food Service Personnel*
   — Designate a Supervisor of food service operations for the shelter area.
   — Organize residents and other workers into teams to prepare, transport and serve food, and to dispose of trash and garbage.
7. *Food Preparation*
   — To relieve monotony it may be preferable to plan five or six small feedings per day rather than a smaller number of larger meals. A supply of hot water is the only requirement for most food preparation in a shelter (preparing instant beverages and soups; heating canned foods (unopened) in a container of boiling water). Many items would be eaten cold.
8. *Food Distribution*
   — Plan for hygienic methods of water and food distribution. Space will determine where and how people can be fed in a shelter area. The following methods are possible:

— *Centralized* where persons come to the water and food supplies set up in cafeteria style. More than one distribution point can be set up.
— *Decentralized* where water and food are brought to the shelter occupants.
— *Combination Method* where supplies are issued to group leaders who return to their respective groups to serve the water and food.

— Make special arrangements, under the supervision of qualified personnel, for feeding infants and the ill.

9. *Sanitation*[22]

— Establish strict rules of sanitation for food service workers.
— Establish procedures for washing eating utensils if sufficient disposable utensils are unavailable or if water is limited.
— Prepare instructions for the handling and disposal of garbage and trash in the shelter.

[22]See ANNEX I — Emergency Sanitation, page 68.

THE FOOD SERVICE DISASTER PLAN

PURPOSE OF A DISASTER PLAN

The ultimate goal of emergency planning is the development of a flexible disaster plan which establishes a method of operation to ensure continuity of service in situations when regular operations cannot cope with the job. In time of emergency a plan becomes a decision-making tool because policies and procedures are already established and hasty actions, taken under stress are minimized.

The purpose of a plan, therefore, is:

— to facilitate appropriate action and quicker response;
— to give sound, orderly direction to activities;
— to assure consistency, dependability and better quality of decision.

THE FOOD SERVICE DISASTER PLAN

The Food Service Plan will be an ANNEX or one section of the total institutional disaster plan. The Director of the Food Service Department must work closely with other department representatives so that the Food Service Plan is coordinated with the institution's Master Plan.

General policies, procedures and information applicable to all departments would be included in the Master Plan and would not be repeated in the Food Service ANNEX. Some examples are: mobilization procedures, fire regulations, telephone control, messenger service, internal traffic flow, overall transportation arrangements.

The plan should be in written form, practical and realistic in relation to the anticipated resources, as precise and simple as possible, concise but with enough detail to make it clear, sufficiently flexible to allow for improvisation, and kept up-to-date.

Some data which may change frequently, such as organization charts; lists of personnel, addresses and telephone numbers; and floor layouts may better be attached as Appendices.

The size, shape and cover of the plan should be such that it is easy to handle and store. The use of a loose leaf binder simplifies revision. A table of contents, numbered pages, coloured sections, introductory title pages and indexed tabs assist the user to quickly find the information required.

All key departmental personnel must have copies of both the Food Service Plan and the Master Plan.

SUGGESTED CONTENT

The following headings provide general guidelines and will serve as a check list in the preparation of a Food Service Disaster Plan.

FOOD SERVICE DISASTER PLAN

NAME OF INSTITUTION **DATE OF PLAN**

1. **POPULATION**
   Number of rated beds:
   Usual or average occupancy:
   Estimated number of patient or resident meals:
   — breakfasts
   — lunches
   — dinners
   — nourishments
   TOTAL:
   Projected number of staff meals in an emergency:
   — breakfasts
   — lunches
   — dinners
   — night meals
   — coffee breaks
   TOTAL:
   GRAND TOTAL:

2. **AIM OF PLAN**
   This can define a primary and secondary plan or combination plans for both peacetime and wartime disasters.

3. **FOOD SERVICE DEPARTMENT ORGANIZATION** (An Appendix to the Plan)
   — Names of key food service personnel and alternates for each position.
   — Address of each.
   — Local telephone number (in the institution) of each.
   — Home telephone number of each.

4. **PERSONNEL ASSIGNMENTS** (Regular Staff, Residents, Volunteers)
   — Identification procedures.
   — Where to report in emergency:
      — if on duty
      — if off duty.
   — Duties of regular staff in an emergency.
   — List of possible jobs to which residents/patients can be assigned.
   — Method of obtaining volunteers, list of volunteers, addresses, telephone numbers.
   — List of jobs to which volunteers are to be assigned.
   — Where and to whom volunteers report for assignments.

5. **OPERATIONAL POLICIES AND PROCEDURES**
   — Location of alternate or additional food preparation areas.
   — Alternate location of staff cafeteria (if applicable).
   — Location of additional food service areas (e.g. snack bars for staff and volunteers).

— Emergency menu pattern.
— Types of modified diets to be used in emergency.
— Modifications in patient or resident food service.
— Modifications in staff food service.
— Procedures for infant formula preparation (if applicable).

6. **FLOOR PLANS, FLOW CHARTS** (Appendices to the Plan)
— Diagram showing layout and traffic flow in any alternate or improvised area to be used for food production or service.
— List of supplies, equipment and staff required in the new area(s).
— Serving procedures to be followed for:
  — patients/residents
  — staff and volunteers.

7. **SUPPLIES AND EQUIPMENT**
a. *Food*
— Determine number of days' food supply normally available in the institution (fresh produce, meat, frozen items, staples, etc.).
— Method of obtaining supplies from institutional stores during unscheduled hours (authorized person(s), location of keys).
— Arrangements with outside sources of supply for emergency food deliveries (coordinated with the institution's purchasing department).
— Arrangements with outside sources of supply for ready or convenience menu items, or prepared meals from other institutions or food service establishments.
b. *Dishes and Eating Utensils*
— Reserves of regular dishes and eating utensils.
— Plans for multiplying their use in emergency.
— Quantity of disposable food service items normally in stock.
— Designated use of disposable items.
— Arrangements with outside sources of supply for emergency deliveries of disposable food service items (coordinated with the institution's purchasing department).
c. *Equipment*
— Normal reserves in the institution.
— Arrangements for maintenance.
— Arrangements with outside sources of supply for emergency deliveries (coordinated with the institution's purchasing department).

8. **ALTERNATE PLANS**
a. *In the Event of Disrupted Utilities*
— Means of obtaining safe water (in collaboration with the institution's maintenance or engineering department).
— Plans for emergency lighting in food production and serving areas.
— Emergency power available in the institution, food service equipment that is automatically switched to emergency service, arrangements for sharing power with other departments.
— Instructions for conversion to other types of fuel (in collaboration with

the institution's maintenance or engineering department).
— Emergency menu pattern and list of supplies required for specified number of persons.
— Substitute methods of internal food transportation (e.g. without elevator service).
— Emergency sanitation procedures (dishwashing, refuse disposal, etc.).
— Agreements concerning external assistance from other municipal resources (local restaurants and vendors, beverage companies, dairies, etc.).
— Arrangements for improvised field type feeding.

b. *In the Event of Evacuation* (Involving movement of patients/residents and staff to another location, either within or outside the institution).
— Relocation sites for different situations.
— Food service arrangements at the site(s) (layout, personnel, equipment, supplies, emergency procedures).
— List of essential supplies and equipment to salvage (time permitting):
  — where they are located;
  — personnel responsible for them;
  — location of assembly point for transport.
— Food supplies required during transit.
— Method of transport to relocation site.

c. *In the Event of Constrained Resources* (Strike situation, physical isolation)
— Emergency menu pattern.
— Instructions for advance preparation of menu items.
— Food priorities (if required).
— Arrangements for delivery of supplies.
— Personnel assignments.
— Emergency procedures for:
  — food preparation
  — food production
  — food distribution
  — meal service
  — infant formula preparation
  — sanitation.

d. *In the Event of Taking Shelter in a Nuclear Environment*
— Location designated as institution shelter.
— List of water and food stored in shelter or to be taken there in an emergency.
— List of other supplies and equipment required.
— Personnel assigned responsibility for shelter supplies and operations.
— Method of food preparation and distribution in shelter.
— Food service sanitation procedures.

9. **DISTRIBUTION OF PLAN** (An Appendix to the Plan)
— Names of personnel who have a copy.

TESTING THE PLAN

Training and exercises are integral parts of institutional emergency planning. To determine its viability and validity, a plan needs to be exercised; periodic tests

under various simulated disaster conditions should be conducted to test its effectiveness and maintain constant readiness. Critiques after each test exercise or actual experience will indicate the improvements and revisions needed.

The food service department must be involved in all institutional exercises to test the effectiveness of its integrated plan. Departmental employees would participate as required, but could also observe to become familiar with overall emergency activities. For example, seeing simulated casualties during an exercise will help to condition staff for a real disaster and prevent them from becoming unnecessarily alarmed.

Certain segments of the Master Plan, such as alert and notification procedures, can be subjected to practice performance by individual departments from time to time. Other suggestions for the food service department include:

— Assess institutional food stocks at their lowest inventory level. Determine their adequacy in the event the institution should be cut off and additional supplies and public utilities are affected for several days.

— Consider what would happen if a disaster occurred when the number of employees is at a minimum and conditions prevent others reaching the institution.

— Set up an improvised food service area, which has been selected as an alternate location within the institution, and serve an emergency-type meal to the staff.

— Test and time the delivery of trays, passed by means of a human chain (from one person to another), up flights of stairs and return for dishwashing in the event that elevator and lift services are disrupted.

— Use the elements of surprise and irregular timing after regular drills have been practised.

TRAINING FOR EMERGENCY

Residents of an institution give over much of the management of their lives to the institutional staff. Because a feeling of security is part of their daily living, they want assurance that the institution will continue to care about them and maintain them in disaster. Staff, therefore, have a responsibility, both to the residents and to the community, to be ready for such an eventuality.

Residents also should be involved in training and exercises. They will want to be included, and their participation and cooperation are essential to successful response and effective emergency operations. All planning should take into account the fact that the resident population constitutes a unique, readily available and reliable source of volunteer services.

Planning for emergency involves changes, and staff and residents are often resistant to change. The factors that produce change for them concern realignment of function, redefinition of goals, and redefinition of role. Their reaction, however, will depend on the nature of the change as well as how pervasive it is. Extensive changes in policy may meet with resistance, whereas changes in only some parts of the food service operation will be more readily accepted. Emergency operations usually demand some modifications in policy and disruption of routines. If, however, these modifications are kept to a minimum, and staff and residents are aware of the reasons why they have to be made, adjustment to the "new" will take place with less difficulty.

COORDINATED TRAINING PROGRAM FOR EMERGENCY

Training for emergencies must be centrally directed and coordinated to ensure the full and equitable use of the institution's personnel resources. For example, when all personnel are familiar with the institution's disaster plan as a whole, aware of the problems facing each department, and understand the emergency procedures required, they are capable of performing in many capacities throughout the institution. Coordinated training will promote this aptitude for interdepartmental exchange in emergency operations. The food service department will benefit from this assistance from personnel who are familiar with the institution, know its layout, and know many of the regular employees and residents.

TRAINING FOR EMERGENCY FOOD SERVICE OPERATIONS

Familiarization with the Departmental Disaster Plan and an understanding of the institutional disaster plan as a whole, should be part of each food service employee's orientation. Sufficient emergency training of a general nature is required also to develop a sense of preparedness, to ensure that workers will act in consistent, dependable and predictable ways, and that each person knows what to expect of the others. A basic training program should present essential information, define emergency tasks, and include enough practice to develop coordination so everyone is aware of his/her part in the plan. The specific type and amount of training, however, will depend on the extent that pre-planned emergency procedures deviate from regular day-to-day practice. Decisions will have to be made whether specific emergency assignments are advisable.

Overall training can be initiated by scheduling short sessions, using audio-visual aids to depict vividly the nature and effects of natural disasters and the problems created.[22] Emergency situations based on local threats will be the most relevant and meaningful. Subsequent training periods for food service personnel can be planned as a block of instruction or combined with regular staff training programs. For example, a session on food handling and sanitation could be applied to an emergency situation.

In addition to verbal instruction, workers need *written* instructions concerning their emergency responsibilities and duties. In time of confusion and stress, difficulties of interpretation or understanding can be expected in communication. Therefore, written procedures should be spelled out in manuals, directives, or the emergency plan.

SUPERVISION IN EMERGENCY

All employees must know to whom they can turn for guidance in emergency. Supervisors should keep in mind that, because of anxiety and uncertainty, many workers will have a greater dependency and will need and welcome authority and direction. In these situations a more autocratic type of leadership, requiring obedience with little or no explanation for reasons of safety and urgency, may be needed in a way that would not occur in regular administration.

[22]A variety of films on disaster can be borrowed through local EMO Coordinators. Additional films and slides are available from Provincial Emergency Welfare Services Organizations or Emergency Welfare Services Division, Department of National Health and Welfare, Ottawa.

ANNEXES

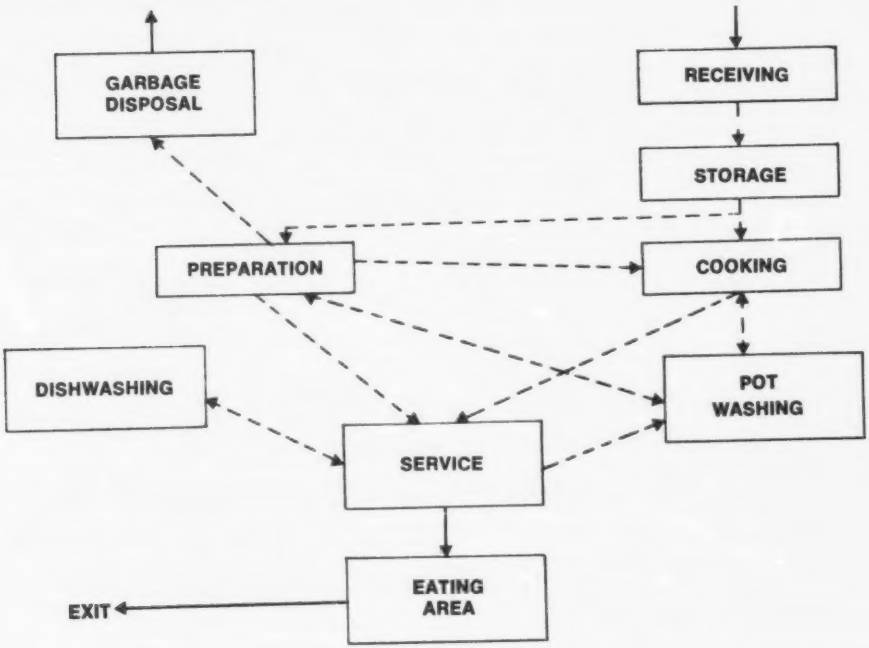
ESTABLISHING AN IMPROVISED FOOD SERVICE FACILITY

In some emergency situations, for example if the institutional kitchen is damaged, it may be necessary to temporarily use another part of the institution or a nearby building, acquire the necessary equipment and set up an improvised food service operation.

Food production and meal service may both be involved, or production only, or meal service only, depending on the circumstances.

The following flow chart and layout suggestions will serve as a guide for an area where there are no existing food preparation and production facilities.

TRAFFIC FLOW CHART



LAYOUT SUGGESTIONS

1. *Receiving Area*
   — Arrange area accessible to a delivery entrance.
2. *Storage Area*
   — Locate between the receiving and the preparation and cooking areas.

— Equip the area with tables, shelves and off-the-floor racks for storage of dry staples.
— Provide refrigeration facilities for perishables.

3. *Handwashing Area*
— Locate where accessible for the use of all food workers.

4. *Preparation Area*
— Provide work tables, cutting boards; sink (or other large containers) and drainboard area; storage space for utensils; containers for trash and garbage.

5. *Cooking Area*
— Place between the storage and serving areas.
— Group the stoves and cooking equipment, such as work tables, pots and pans, in a convenient working arrangement.

6. *Dishwashing and/or Pot Washing Area*
— Locate near the serving and preparation areas.
— Provide tables or counter for stacking soiled dishes and utensils; containers for plate waste and trash; a three-compartment sink (or 3 large containers) for washing, rinsing and sanitizing; drainboards or tables for air drying clean dishes, pots and pans.
— Provide tables for clean utensils and transport to storage areas.
— If disposable eating utensils are used, a pot washing area only may be sufficient.
— Provide covered containers for garbage.

7. *Serving Area*
— Locate serving space in the most convenient and accessible area.
— Arrange for line feeding with several serving stations as required for speedier service.
— Use self-service as suitable and feasible for the type of institution.

8. *Eating Area*
— This can be part of the serving area or in an adjacent area(s).
— Provide chairs or improvised tables (planks placed on concrete blocks, bricks or empty oil drums) at a convenient standing height for personnel to eat.
— Provide suitable receptacles for soiled dishes, cutlery, and refuse.

9. *Disposal Area*
— Enclose this area and locate away from the preparation, serving and eating areas, preferably near the exit door for pick up and final disposal.
— Provide covered containers for trash and garbage; supplies and equipment for cleaning and disinfecting containers.

SUGGESTED EQUIPMENT FOR IMPROVISED FACILITIES

The following equipment list is minimum for feeding 200 and 500 persons two meals per day with improvised facilities and cafeteria-type service. Additional items can be included as available and/or as required. Some portable equipment may be available from other parts of the institution such as a staff residence, or from other sources within the community.

When food production and meal service are both involved, the items listed under the headings 1, 2, 3 and 4 are essential. If food production only is required (meal service elsewhere) items listed under 1, 3 and 4 will be needed. When serving facilities only will be operating (prepared food delivered from another food service facility) those items listed under 2, 3 and 4 will be needed.

If more than 500 persons are to be fed, it will be preferable to establish additional units of similar capacity rather than single larger facilities.

1. Equipment for Food Production	For 200 Persons (Two Meals Per Day)	For 500 Persons (Two Meals Per Day)
Bags, plastic, garbage can liners	as required	
Baking sheets	6	10
Beater, egg	1	1
Beverage maker, with spigot	2	2
Blender	1	1
Brushes, vegetable	2	3
Boards, cutting (large)	2	2
Bowls, mixing (large)	3	4
Cans, garbage with lids	2	3
Can opener (wall or table type)	1	1
Chopper, food	1	1
Colander	1	1
Containers, covered, plastic or metal (for storage of bulk dry foods)	as required	
Dippers or ladles	2	2
Forks, cooks'	2	2
Funnels	2	2
Knives — bread	2	2
— butcher	2	2
— paring	4	6
Measures for dry ingredients	1 set	1 set
Measures for liquids	1 set	1 set
Pans, frying (large)	2	2
Pans, roasting (if ovens available)	4	6
Pots, stock with lid (for making soup or main dish, boiling water)	4	6
Refrigerator	as available	
Scraper, vegetable	4	6
Spoons, basting	3	4

Spreaders, butter	4	4
Stoves or hot plates (heavy duty if possible)	6 burners	8 burners
Table area (folding tables, planks, trestles, bricks, etc.)	as required	
Tongs, serving	4	4
Towel, paper dispenser	as required	
Trays	18	30
Turner, egg	2	2
Whip, wire	2	2

2.

Equipment for Meal Service	For 200 Persons (Two Meals Per Day)	For 500 Persons (Two Meals Per Day)
Containers, insulated (for liquid and solid menu items)	as available	
Containers for pre-portioned items (salt, pepper, sugar, cream, condiments, etc.)	as required	
Disposable food service items:	as required	
— Cups, hot (beverage or soup)		
— Cups, cold		
— Plates		
— Knives		
— Forks		
— Spoons, dessert or soup		
— Spoons, tea		
Ladles	2	4
Pitchers	2	4
Spoons, serving (plain and slotted)	2	4
Table, serving (folding or improvised)	as required	
Tongs, serving	2	4
Trays	as available	

3.

Equipment for Cleaning	For 200 Persons (Two Meals Per Day)	For 500 Persons (Two Meals Per Day)
Broom	1	1
Brushes, scrub	2	2
Cleanser, household	1 container	2 containers
Cloths, cleaning	as required	
Cloths, dish	as required	
Detergent	1 package	2 packages
Dustpan	1	1
Mop and pail	1	1
Sanitizing agent	1 container	2 containers
Scrapers, pot	6	12
Sinks (if already installed in building)	as available	
or	(plus extra containers as required to make a three-compartment unit)	
Dishpans, large tubs, pails, etc.	3	6
Soap, liquid	1 container	2 containers
Towels, hand (single-use)	4 rolls	6 rolls

4.

Miscellaneous	For 200 Persons (Two Meals Per Day)	For 500 Persons (Two Meals Per Day)
Aprons and caps, cooks'	as required	
Bleach, household	1 container	1 container
Boxes (for storing small equipment)	as required	
Extinguisher, fire	1	1
Hammer	1	1
Kit, first aid	1	1
Matches	as required	
Pot holders	8	8
Scissors or shears	1	1
Sharpener, knife	1	1

PERSONNEL REQUIREMENTS IN EMERGENCY OPERATIONS

Personnel requirements for emergency operations will depend upon the experience of the available workers, number of meals served per day (whether two or three), type of menu, available facilities and equipment, and the state of public utilities.

The following personnel guidelines apply only to very simple emergency-type food service using improvised facilities. Staff requirements using regular institutional facilities will already be established by the food service department and can be adjusted according to the emergency situation.

The guidelines outlined for emergency are based on three types of operation — food production and meal service, food production only, and meal service only — from which institutions can select their particular requirements and make their own adjustments. It is realistic to assume that in emergency all types of food service workers would assist wherever their services were most needed at the time.

The suggested number of basic personnel is established on a "per working period" basis. The length of a working period in emergency may vary from 8 to 12 hours.

Supervisors and cooks should be trained workers; volunteers can perform the other duties if necessary. Some male personnel should be included for heavy duties.

FOOD PRODUCTION STAFF

Regardless of whether a "two meal a day" service is established for a short period or whether the regular "three meal a day" pattern is continued, working periods must be staggered so that a sufficient number of cooks, cooks' assistants and kitchen helpers are on duty to cover all meal periods. The food production staff suggested in the following guidelines would cover one working period, the same numbers would be required for a second shift, with possibly an additional cooks' assistant and kitchen helper for 24 hour coverage. In this way each worker could receive his/her full time off duty. An extended emergency period would require relief staff.

MEAL SERVICE STAFF

Personnel requirements as included in the guidelines would be sufficient for cafeteria-style service for staff, volunteers, and ambulatory patients/residents for each meal period. They would not, however, cover patient tray service in an institution. The numbers required for this part of the food service operation would depend on the type of tray assembly system normally used and the modifications established for emergency.

SUPERVISORY STAFF

Supervisors for food production and meal service are designated as "working" supervisors in the following guidelines. Additionally, there would be a requirement for overall supervision of these functions, which should be provided by senior staff of the food service department who would make all professional decisions.

The guidelines indicate the need for increased supervisory staff when both food production and meal service have to be covered by the same person(s). When production and service are split, additional supervisory staff are allocated to each of these two functions to allow for a three meal coverage.

FOR BOTH FOOD PRODUCTION AND MEAL SERVICE (PER WORKING PERIOD)

Staff	200 persons	500 persons	1000 persons (facilities permitting)
Working Supervisors	1	2	3
Food Production:			
Cooks	2	3	4
Cooks' Assistants	2	4	8
Kitchen Helpers	6	12	24
Servers:			
Main Dish	1	2	4
Sandwiches or Bread	1	2	4
Beverage	1	2	4
Traffic Directors	2	4	6
Clean-Up:			
Dishwashers and General Cleaners	2	4	6
TOTAL	18	35	63

FOR FOOD PRODUCTION ONLY (PER WORKING PERIOD)

Staff	200 persons	500 persons	1000 persons (facilities permitting)
Working Supervisors	1.5	1.5	2.5
Cooks	2	3	4
Cooks' Assistants	2	4	8
Kitchen Helpers	6	12	24
TOTAL	11.5	20.5	38.5

FOR MEAL SERVICE ONLY (PER WORKING PERIOD)

Staff	200 persons	500 persons	1000 persons (facilities permitting)
Working Supervisors	1.5	1.5	2.5
Servers:			
Main Dish	1	2	4
Sandwiches or Bread	1	2	4
Beverage	1	2	4
Traffic Directors	2	4	6
Dishwashers and General Cleaners	2	4	6
TOTAL	8.5	15.5	26.5

PERSONNEL EMERGENCY ASSIGNMENTS — IMPROVISED FACILITIES

Organizing food services in improvised facilities involves four basic tasks: (1) planning, (2) food preparation and production, (3) meal service, and (4) cleaning up and maintaining proper sanitary conditions.

The duties of workers in carrying out these four types of activities in emergency include:

1. *Planning (Dietitian, Food Service Supervisor/Dietetic Technician)*
   - — Plan and post menus, recipes and work schedules.
   - — Requisition food and other supplies according to established institutional procedures.
   - — Receive, check, store and allocate supplies.
   - — Assign jobs.
   - — Supervise workers.
   - — Enforce sanitary and safety practices.
   - — Maintain necessary records.
2. *Food Preparation and Production* (Cooks, Cooks' Assistants, Kitchen Helpers)
   - — Follow menus, recipes and work schedules.
   - — Schedule food production for optimum quality at the time of serving.
   - — Arrange work area for efficiency and keep it clean.
   - — Deliver food to serving area.
   - — Arrange for proper storage or disposal of leftovers.
   - — Deliver soiled cooking utensils to pot washing area.
3. *Meal Service* (Meal Service Personnel, Cooks' Assistants)
   a. *Before the Meal*
      - — Decide on location of serving counter and where lines will form.
      - — Arrange more than one serving line as required.
      - — Organize and arrange eating area.
      - — Assign serving duties.
      - — Assemble serving supplies and equipment.
      - — Plan food arrangement on counter.
      - — Plan movement of clientele from serving to eating area by use of traffic directors.
      - — Assign persons to assist young children and elderly persons from serving to eating areas (if applicable).
      - — Arrange for trash and waste containers.
      - — Arrange for directional signs to eating area, disposal points and exit.

   b. *When Ready to Serve the Meal*
      - — Arrange serving utensils for convenience.
      - — Determine size of portions to be served.
      - — Ensure enough servers for each station.
      - — Serve food attractively, avoiding spilling and over filling.
      - — Keep prepared food covered when not being served.
      - — Keep serving area clean and tidy.

   c. *After the Meal*
      - — Clear the serving counter.
      - — Deliver leftover food to kitchen for storage or disposal.
      - — Dispose of trash from serving area.

4. *Cleaning up and Maintaining Good Sanitary Conditions* (Kitchen Helpers, Dishwashers and General Cleaners)
   - — Arrange for proper toilet and handwashing facilities and potable drinking water.
   - — Maintain control of cleaning supplies and issue to work groups.
   - — Maintain general cleanliness and sanitation of the food service area (floors, tables, working surfaces, shelves, refrigerators, equipment, serving counters).
   - — Set up trash and waste collection and disposal.
   - — Dispose of trash and waste and sanitize the containers.
   - — Wash, rinse, and sanitize soiled dishes and utensils and store properly.
   - — Wash and rinse cloths.

PERSONNEL POLICIES IN EMERGENCY

Although personnel policies in emergency will be determined by the individual institution, the following suggestions can be adapted by the food service department as required:

- — Keep an up-to-date list of key departmental personnel in order of priority to be notified.
- — Designate alternates for each key staff position.
- — Plan a system to notify departmental staff of an emergency situation and to keep key staff informed:
  - — Use a departmental fan-out system (i.e. one or two key staff initiate the system by contacting one or more other staff members, who in turn are responsible for contacting additional persons).
  - — Plan an alternate system in case the regular telephone system fails.
  - — Make provision for an "alert" or "on call" status in situations where immediate response is not required.
- — Retain staff who are on duty at the time of the emergency until job rescheduling can be carried out.
- — When there is a heavy load on the institution's food service facilities, ask employees to bring their own lunches during the emergency period, and suspend cafeteria service except for beverages. Alternatively, vending services by an outside company could be set up.

USE OF VOLUNTEERS

Emergency situations usually create an increase in the demands on the food service department which must be met in a drastically changed environment. There will be uncertainty concerning the nature of the demands as well as the status of personnel resources. The planned use of volunteers, therefore, will assist in coping with this uncertainty and probable increase in tasks. At the same time, tasks which are normally scheduled and routinized have to be re-evaluated because they may become unnecessary luxuries in emergency.

The use of volunteers in emergency necessitates the diversion of regular staff to supervision and instruction of the new personnel who may have varying degrees of skill and previous connection with the institution. In turn, regular personnel

move into new positions which may involve them in unfamiliar relationships. To make the most effective use of volunteers, the following suggestions are outlined:

— Determine the jobs to which volunteers can be assigned (e.g. routine tasks so regular employees can be released for more essential duties).
— Designate a person in the department to whom food service volunteers report. This same person would be responsible for allocating specific tasks, explaining to the volunteer what is expected and how to carry out the task.
— Provide volunteers with appropriate identification to facilitate their entry to the institution.
— Use volunteers who are familiar with the institution through frequent service, if possible.

IMPROVISED SERVING ARRANGEMENTS

If regular serving and dining facilities are unavailable or require expansion in emergency, improvised serving areas will have to be set up.

In institutions using table-type service it may be possible to channel residents and staff through the kitchen where meals can be served from hot food tables or heated carriers, or if necessary directly from the cooking equipment.

Seating accommodation can be provided in an adjacent area(s).

In other situations it will be more convenient to organize improvised serving counters in a spacious area where one or more lines can form.

SUGGESTIONS

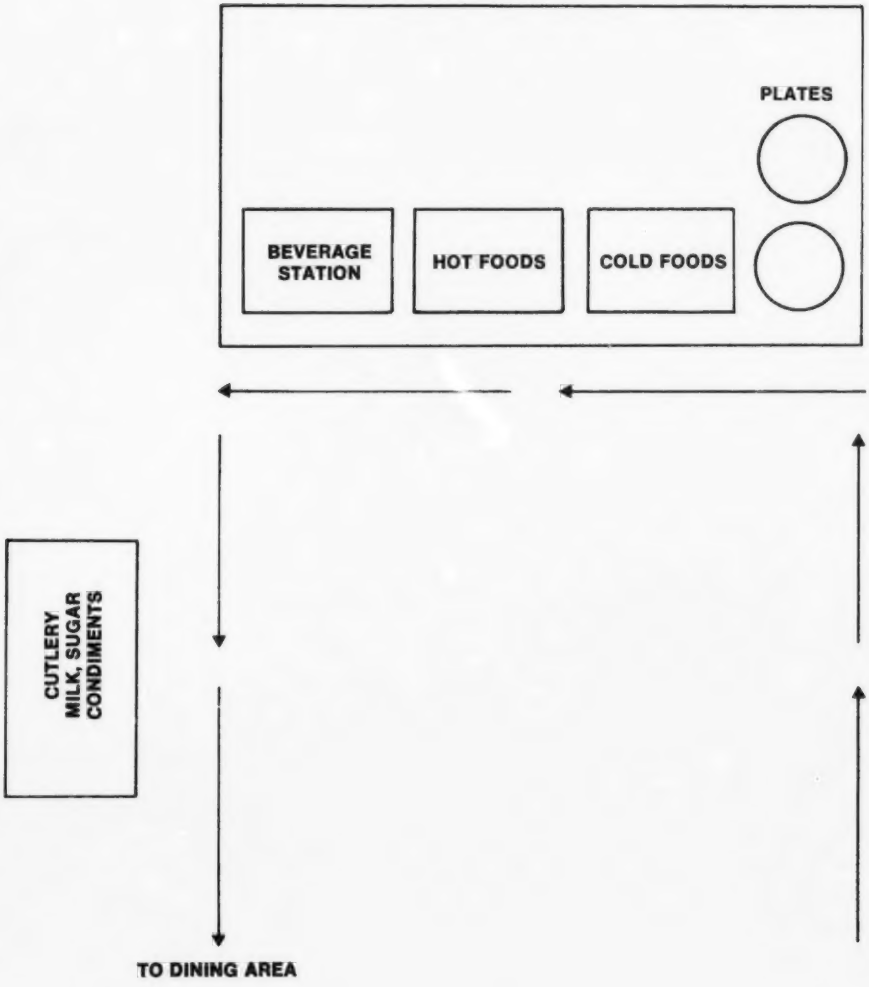
1. For a single line, improvised counter arrangement serving an emergency-type menu, provide 300 centimetres (about 10 feet) of counter length with 120 to 135 centimetres (about 4 to 4½ feet) of space for servers behind the counter. Allow sufficient space in front for persons to pass and pick up their food.
2. Use tables, or planks placed on trestles, bricks, concrete blocks, etc. as counter area.
3. Cover counters with clean paper or cloths.
4. Place cold foods first, hot foods last.
5. Use thermal containers or a hot food truck as available for serving hot foods. If unavailable, serve foods directly from the containers in which they were cooked to retain heat.
6. Assign specific tasks to each server.
7. Establish size of portion and use portion control equipment (ladles, tongs, etc.).
8. If disposable plates and cups are used invert them on clean trays, towels or paper for easy separation.
9. Serve and assemble the complete meal behind the counter and deliver to recipient at one point in the line. A three-compartment disposable plate can substitute as a tray if necessary.
10. Place beverage station in a convenient location for self-service.
11. Put cutlery in containers with handles upright to avoid handling of eating surface.
12. Place cutlery, milk, sugar, and condiments for self-service where minimum "bottle necks" and cross traffic will occur.

The number of lines and their arrangement will depend on the number to be served and the available space.

Several possible arrangements are shown by the following flow charts.

EXAMPLES OF IMPROVISED SERVING LINE ARRANGEMENTS

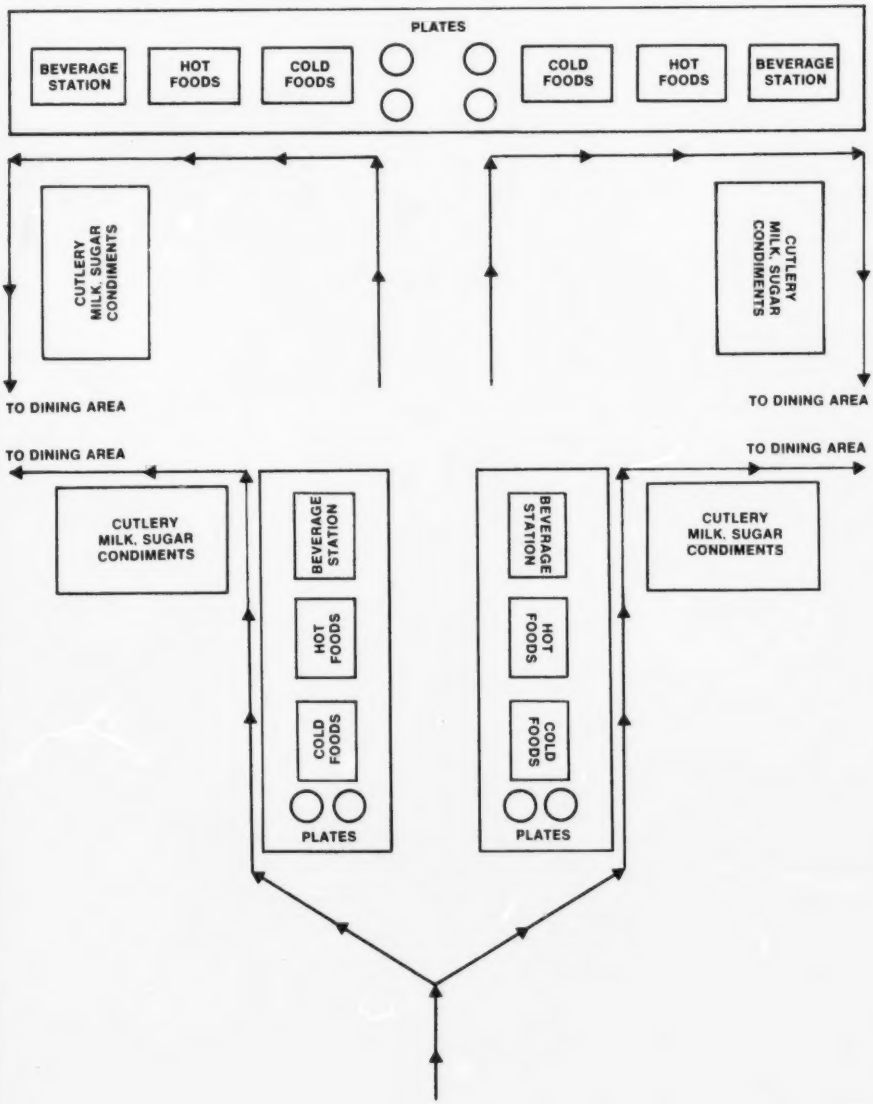
SINGLE LINE ARRANGEMENT

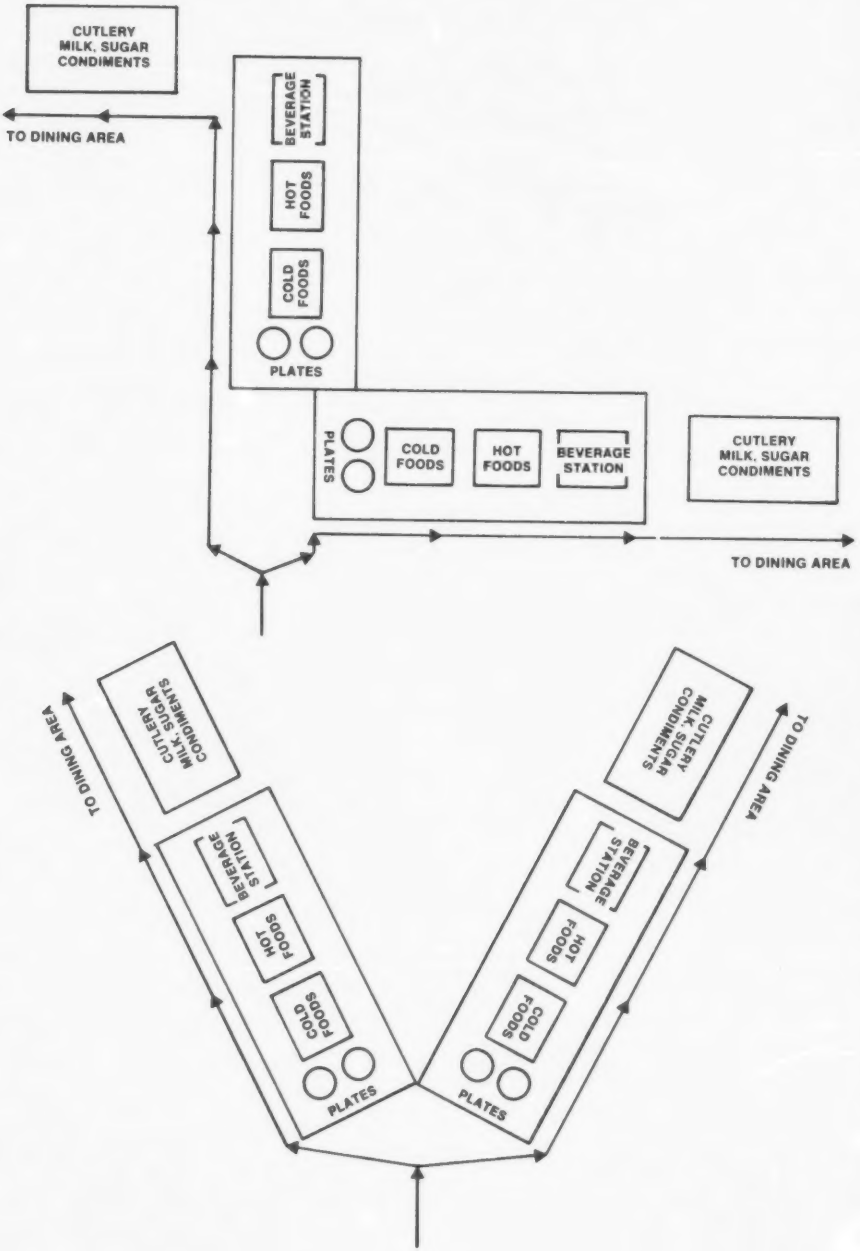


DOUBLE LINE ARRANGEMENTS

If more than 200 persons are to be served and if space permits, it would be desirable to arrange two lines. There are several possibilities, depending on the layout of the available area and the location of entrances and exits.

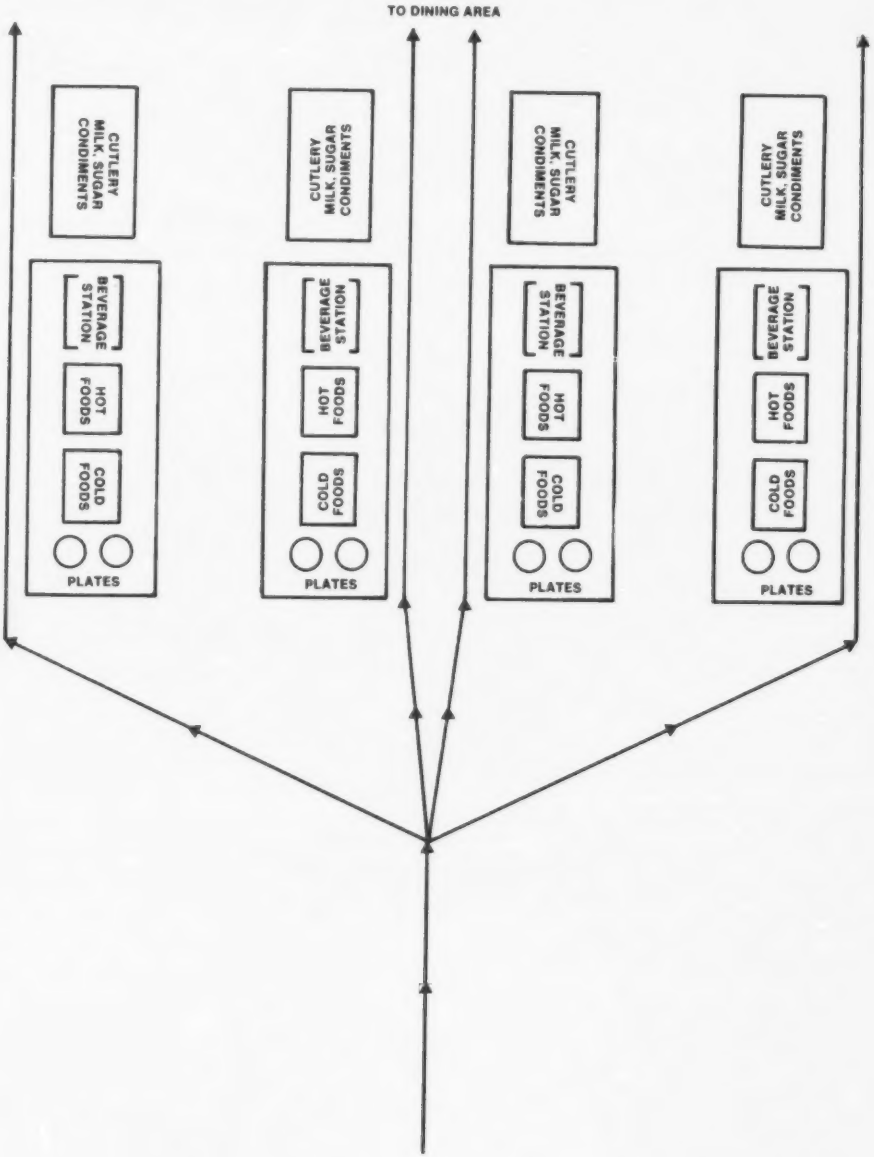
Some suggestions follow.




CUTLERY
MILK, SUGAR
CONDIMENTS
TO DINING AREA
BEVERAGE STATION
HOT FOODS
COLD FOODS
PLATES
PLATES
COLD FOODS
HOT FOODS
BEVERAGE STATION
CUTLERY
MILK, SUGAR
CONDIMENTS
TO DINING AREA
TO DINING AREA
CUTLERY
MILK, SUGAR
CONDIMENTS
BEVERAGE STATION
HOT FOODS
COLD FOODS
PLATES
PLATES
COLD FOODS
HOT FOODS
BEVERAGE STATION
CUTLERY
MILK, SUGAR
CONDIMENTS
TO DINING AREA

MORE THAN TWO LINES

If more than two lines are necessary, one suggestion for a four-line arrangement is as follows.



EMERGENCY MENU PATTERNS

USEFUL FOODS FOR EMERGENCY

As a general rule, perishable refrigerated foods should be used first to avoid waste and spoilage in case electrical power is affected. Frozen foods will remain in safe condition for 36 - 48 hours if entrance to the freezer is controlled. Otherwise when safety, speed and convenience must be considered, the following items are useful:

1. *Beverage Ingredients*
   - — Tea, instant coffee, instant hot chocolate
   - — Fresh, dried and evaporated milk, dehydrated creaming agents
   - — Sugar
   - — Canned or frozen juices, fruit flavoured crystals.
2. *Soups*
   - — Canned
   - — Dehydrated
   - — Bouillon cubes
   - — Quick soups made by diluting canned stews.
3. *Main Dish Items*
   - — Canned meats, fish, ready-to-serve meals (e.g. stews, spaghetti, beans)
   - — Quick stews and soups made from canned meat with the addition of canned vegetables, using all the liquid
   - — Instant potatoes
   - — Undiluted canned soups served over rice, macaroni or spaghetti
   - — Hard cooked eggs
   - — Cheese.
4. *Vegetables and Fruits*
   - — Canned or frozen vegetables
   - — Fresh, canned, dried or frozen fruits.
5. *Cereal Products*
   - — Bread
   - — Crackers, melba toast, biscuits, cookies, baked goods
   - — Ready-mixes
   - — Ready-to-eat cereals
   - — Hot cereals with milk, sugar and fruit (to replace a traditional type meal).
6. *Spreads*
   - — Butter or margarine
   - — Jams, jellies, marmalade, honey
   - — Peanut butter
   - — Soft cheese spreads.
7. *Miscellaneous*
   - — Instant pudding mixes
   - — Jelly powders
   - — Formula diets (as a meal substitute).

BASIC EMERGENCY MENU PATTERN

The following basic three-meal menu pattern can be adapted for various emergency situations. Under some conditions, two meals per day may be all that can be provided for a limited time. If so, additional between-meal nourishments should be available for staff and volunteers.

Breakfast	*Dinner*	*Lunch or Supper*
Fruit or juice	One-dish meal	Soup or juice
Cereal, milk, sugar	Vegetable(s)	Sandwiches
Bread, spread	Bread, spread	or
Cheese	Simple dessert	One-dish meal
Beverage	or fruit	Fruit
	Beverage	Biscuits or cookies
		Beverage

MENU PATTERNS UNDER ASSUMED EMERGENCY SITUATIONS

If potable water is limited or unavailable, and public utilities affected, the basic menu pattern will have to be modified as follows:

1. *Water Restricted, Utilities Available*
   - — Utilize all liquids from canned foods.
   - — Substitute other liquids such as juices, canned soups and soft drinks in cooking.
   - — To conserve water, cook as many foods as possible by dry methods in ovens, and by steam (if available).
   - — Serve foods which can be eaten from the hand whenever possible (dish-washing restricted).
   - — Use water ration for hot beverages.
   - — Use disposable food service items.
2. *Safe Water, No Utilities*
   - — Use canned and package foods, eaten cold.
   - — Construct improvised cooking units to prepare hot beverages and soups.
3. *No Safe Water, No Utilities*
   - — Disposable food service items are essential in this situation.
   - — Serve sandwiches, canned foods which can be eaten cold, and snack foods.
   - — Construct improvised cooking units to heat cooked or ready-to-serve canned foods.

FOOD EXCHANGES IN MENU PATTERNS

If food supplies become uncertain or restricted, the preparation of palatable meals may require the substitution of available items for others within the broad food groups. For example, fruits and vegetables can substitute for each other. A useful guide in these situations is the Exchange List used in diabetic and other controlled calorie diets.

THE CONSTRUCTION AND USE OF IMPROVISED FEEDING EQUIPMENT

An institutional feeding plan should include provision for the construction and use of improvised equipment in case public utilities are disrupted for an extended period of time.

This ANNEX provides information about simple units which can be quickly and easily constructed for boiling water, heating prepared foods, roasting, and dishwashing under emergency conditions.

IMPROVISED COOKING UNITS

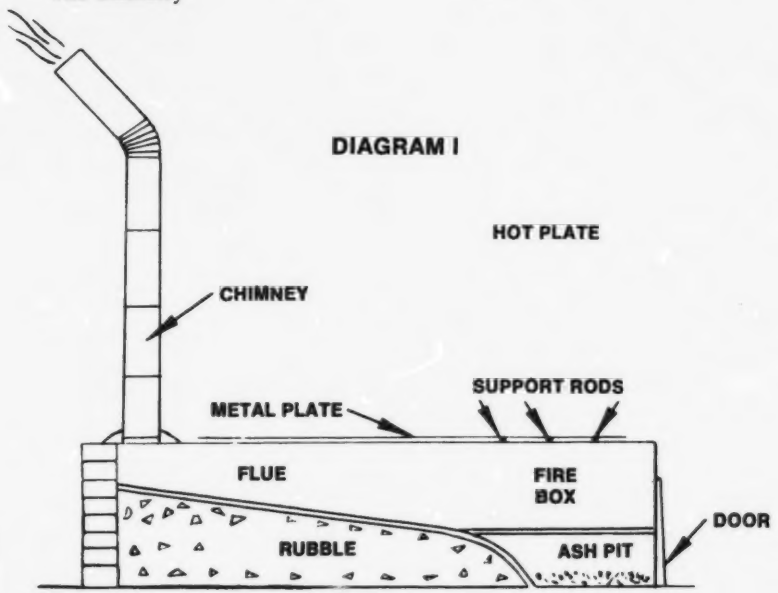
BASIC ELEMENT

Certain guiding principles are applicable in the construction of all improvised stoves. A knowledge of these will be helpful in making use of the materials available in different situations.

In choosing the site for the erection of improvised stoves, it should be ensured that it is reasonably level, dry and firm, and protected from the weather as well as possible without causing a fire hazard.

The basic elements of any improvised cooking unit are:

— The Firebox
— The Flue
— The Chimney



1. *Firebox*

The opening preferably should face the prevailing wind, and as a general rule the size of the firebox need not be larger than 60 centimetres (about 24 inches) long by 46 cm (about 18 inches) wide by 23 cm (about 9 inches) high. The draught of air necessary for rapid combustion is more easily obtained if the base of the firebox is raised above the ground. A grating, a grid, pipes laid crosswise, or a perforated metal sheet, are some of the materials that may be used to improvise an elevated base on which the fuel can be placed. This also serves to make it handier to replenish the fuel and to remove the ashes.

The door which can be made from a metal plate, tin sheet or box, should be placed in front of the firebox opening. If the metal sheet used for making the hot plate is thin, it can be supported by means of metal rods, bars, or pipe. The height of the stove top is important for ease of working.

2. *Flue*

The fluebed should start slightly above the level of the firebox and rise gradually towards the chimney end. This may be built up with soil, rubble, or other solid filler. For a more efficient stove, the surface of the fluebed may be smoothed off with a layer of mortar or packed evenly.

3. *Chimney*

This may be constructed of cans telescoped together, brick or stone, if piping is not available. To ensure a good draught, the height of the chimney above the ground should be greater than the horizontal length of the flue. Down draughts can be avoided if a crook is placed in the pipe near the top.

4. *Number of Units*

For economy of fuel and increased working space, it is generally felt that a number of units as described is better than a large single stove.

MATERIALS FOR CONSTRUCTION

Stoves can be made of many types of material including bricks, cement blocks, sheet metal, tin cans, metal barrels and earth. In constructing stoves where bricks or cement blocks are used for walls, the mortar (pug) can be made from earth, grass and water mixed to a workable consistency. A small slow fire made in the completed stove will then serve to set the mortar without cracking.

SIMPLE FACILITY FOR COOKING OR BOILING WATER (Diagrams II and III)

1. *Materials*
   a. Cement blocks, bricks, earth filled cans, sods, and pug.
   b. An oil drum (or half an oil drum).

2. *Construction*
   a. As illustrated in Diagram II.
   b. A firebox and ash pit can be added if desired, as per Diagram III.

DIAGRAM II

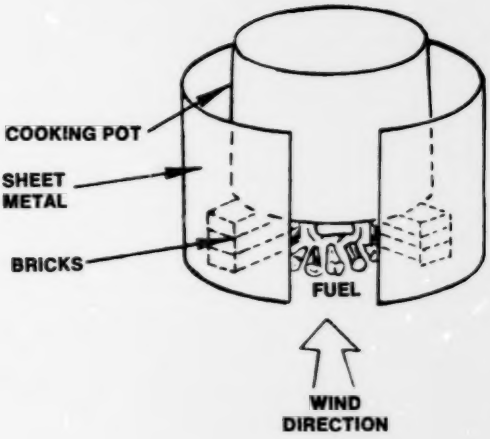
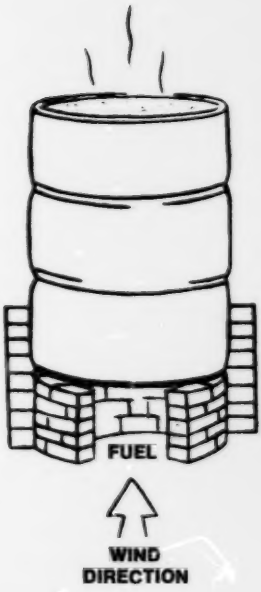


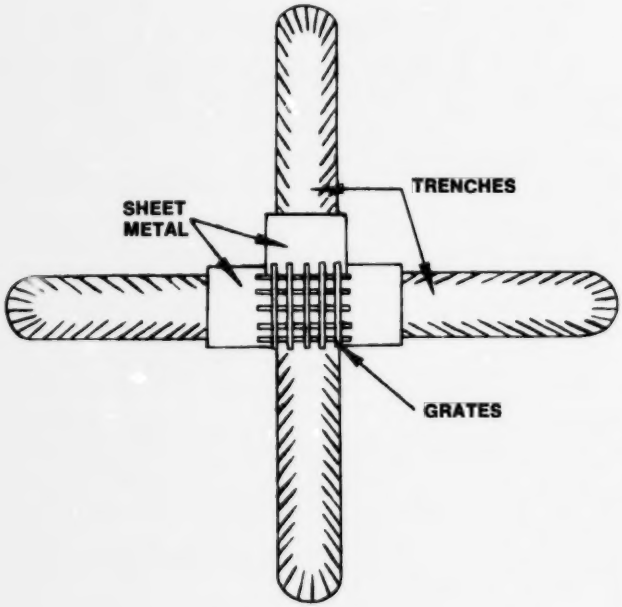
DIAGRAM III



CROSS FIRE TRENCH (BELOW GROUND) (Diagram IV)

1. *Materials*
   a. Three pieces of sheet metal, 46 cm (about 18 inches) by 30 cm (about 12 inches) each to regulate draught.
   b. Approximately ten pieces of scrap iron, each 60 cm (about 24 inches) long for grate (pipe, angle iron, or round iron rods).
2. *Construction*
   a. Dig two trenches, each 244 cm (about 8 feet) long, 30 cm (about 12 inches) wide and 30 cm (about 12 inches) deep, crossing at their centres.
   b. Taper the ends of each trench to the level of the ground.
   c. Place scrap iron over the intersection of the trenches to make a grate.
3. *Operation*
   a. Build coal or wood fire at intersection of trench.
   b. Use the three pieces of sheet metal to block off three of the four sides of the trenches. Leave open side facing the direction of the wind.
4. *Number Needed* (For Cooking and Incineration)
   Two for 100 people.
   Six for 500 people.

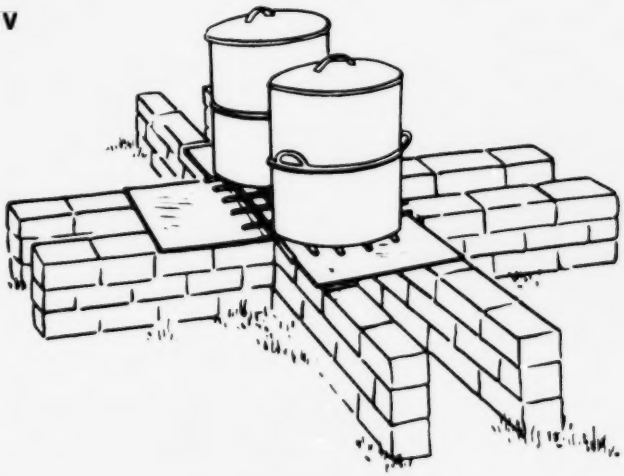
DIAGRAM IV



CROSS FIRE TRENCH (ABOVE GROUND) (Diagram V)

1. *Materials*
   a. Approximately 100 bricks.
   b. Approximately ten pieces of scrap iron for grate (pipe, angle iron, or round iron rods).
   c. Two pieces sheet metal to act as support for grate.
2. *Construction*
   a. Lay four parallel rows of bricks in a cross, so that they intersect at their centres to form a firebox.
   b. Allow 30 cm (about 12 inches) of space between rows.
   c. Form sidewalls by stacking bricks three-high with mortar in between.
   d. Lay sheet metal at intersection.
   e. Place scrap iron over the sheet metal to make a grate.

DIAGRAM V

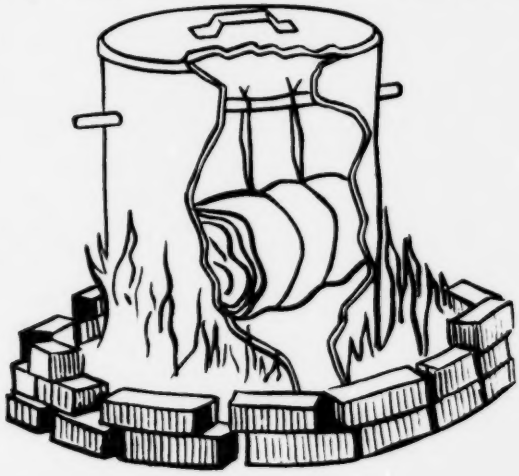


IMPROVISED ROASTER (Diagram VI)

1. *Materials*
   a. One large can with tight fitting cover (e.g. institutional-size shortening can).
   b. Bricks, concrete blocks, or stones to construct sidewalls of a fire pit.
   c. A length of steel rod, round iron, or heavy wire to be used as a spit.
   d. A length of fine, strong wire to tie the meat to the spit.
2. *Operation*
   a. Build fire around inside of brick fire pit, allowing space in centre for cooking container to rest on ground.
   b. Punch a hole for spit on each side of can, a little below the rim.
   c. Wrap fine wire around roast several times (or run wire through centre of meat), leaving ends long enough to make a strong loop.

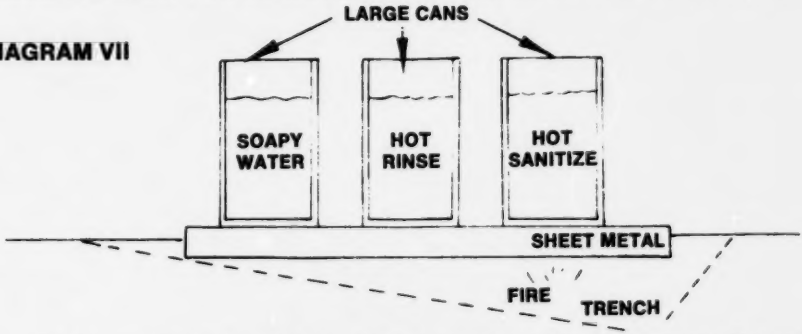
d. Run spit through one hole, then slip wire loops over the spit so meat hangs suspended in the can. Run spit through the other end.
e. Put cover on can.
f. Place container on ground within fire pit and put weight on cover to hold it securely.
g. Do not put water in container as meat should cook in its own steam. Meat cooks more quickly in this type of pressurized container. A 9 to 11 kilogram (about 20 to 25 pound) piece of beef will cook in two to two and one half hours.

DIAGRAM VI



ARRANGEMENT FOR DISHWASHING UNDER EMERGENCY CONDITIONS

DIAGRAM VII



As long as the basic principle of three containers (hot soapy water, hot water rinse, hot sanitizing solution) is followed, any method of heating the containers may be used.

A simple method is to place three large containers (new garbage cans, oil drums cut in half) over a slit trench. The containers may straddle the trench or they can be placed on a piece of sheet metal or on metal bars.

FOOD PRODUCTION IN EMERGENCY

When food production must be expanded and accelerated to cope with increased numbers, many streamlined procedures and time savers can be put into practice. The following suggestions, which are by no means comprehensive, may be helpful:

— Use proper equipment for the job to be done, as far as feasible.
— Serve foods requiring minimal use of cutlery (finger foods).
— Serve one-dish bowl-type meals which can be cooked in one container.
— Boiling or cooking under pressure conserves equipment and utensils and contributes to food safety.
— Eliminate peeling vegetables unless really necessary. For soups and stews cook root vegetables with the skins on as long as sufficient safe water is available to wash them well.
— Cut vegetables and fruits in pieces rather than chopping or shredding finely.
— Cook food such as hamburgers in pans and cut in squares instead of preparing individual portions.
— Soak dried fruits — do not cook.
— If sandwich fillings are moist, omit butter or margarine on the bread.
— Add milk and sugar directly to hot bulk beverages in certain situations (such as immediate emergency feeding, when it is important to provide readily utilizable carbohydrate as well as fluids).
— Use pre-portioned milk with straws for drinking.

FEEDING INFANTS IN EMERGENCY

In an emergency situation, mothers who breast feed their infants are encouraged to continue, if at all possible. It may be that, due to emotional disturbance and anxiety, some mothers have an initial lowering of their milk supply, but with reassurance and a calm atmosphere the supply of breast milk usually returns to normal.

When the emergency interferes with the regular system by which an institution prepares its artificial infant formulas, special arrangements must be made to ensure that all infants are fed with safety and continuity. As far as possible, preparation should be similar to regular procedures.

Disruptions in the regular procedure may range from slight to extensive. It may be that a larger number of infants than usual will have to be fed. There may be a lack or scarcity of regular facilities — space, personnel, formula ingredients, equipment, utilities, etc.

The kind and extent of the disruption and the availability of alternate resources will result in carrying out modifications such as the following:

- — Extend the existing infant feeding system; this may require transporting supplies of commercial infant formula preparations from elsewhere, and prolonging the preparation operation.
- — Make a change in the place for preparing formulas — inside the institution, or outside such as a school or church hall.
- — Make changes in the use of formula ingredients and the method of preparation.

A suitable plan of feeding can be developed by an institution when the situation is assessed and attention given to factors such as the following.

BASIC REQUIREMENTS

- — A clean area with adequate space, out of line of traffic[1].
- — Suitable personnel.
- — Formulas or formula ingredients.
- — Bottles, nipples, caps.
- — Equipment for:
  - — handwashing
  - — washing formula preparation equipment
  - — preparing formula
  - — processing formula.

1. *Preparation Area*[2]
   - — Choose an area equipped with running hot and cold water if possible.
   - — Reserve the selected area exclusively for formula preparation and designate it out-of-bounds to all persons except the personnel assigned to this operation.

[1] Adapted from "Recommended Standards for Maternity and Newborn Care" (1975 Revised Edition), Department of National Health and Welfare, Ottawa.

[2] If formula preparation has to be carried out at a school, a home economics room or a teachers' room are possible preparation areas.

2. *Personnel*

Regular institutional personnel who are assigned to formula preparation in normal day-to-day operations should continue in emergency operations. If experienced personnel are scarce, the regular workers should function in a supervisory capacity.

If workers have to be recruited, they must be chosen carefully to ensure safety and accuracy in preparation procedures. The following characteristics are essential: good health and freedom from infection; cleanliness; reliability; experience.

3. *Formulas or Formula Ingredients*

The use of formulas, as normally used in the institution, would be continued in emergency as long as sources of supply and transportation systems are unaffected.

If these milk preparations or ingredients become unavailable, formulas may have to be made on the premises from basic ingredients. A standard one will be satisfactory using the following ingredients and amounts.

Milk — Canned evaporated
or
Whole fluid

Sugar — Granulated

Water — Any source considered safe for general consumption.

If safe water is temporarily unavailable, other fluids such as bottled or canned fruit juices or soft drinks may be used as a water substitute. Soft drinks should be decarbonated by allowing them to stand, or by stirring or shaking after opening. These liquids may cause curdling of the milk, especially after processing. Although this could not do any serious harm, the taste may cause the baby to reject the formula[3]. Such mixtures also may tend to clog the nipples. If so, they can be given by means of a sterile cup and sterile spoon.

SAMPLE FORMULAS FOR ONE DAY'S SUPPLY[4]

Weight of Baby	3.63 kg (8 lbs)	4.54 kg (10 lbs)	5.52 kg (12 lbs)
Whole evaporated milk (canned)	280 ml (9 oz)	375 ml (12 oz)	465 ml (15 oz)
Water	500 ml (16 oz)	595 ml (19 oz)	655 ml (21 oz)
White sugar	30 ml (2 tbsp)	38 ml (2½ tbsp)	45 ml (3 tbsp)
Fresh whole milk	530 ml (17 oz)	690 ml (22 oz)	810 ml (26 oz)
Water	250 ml (8 oz)	280 ml (9 oz)	310 ml (10 oz)
White sugar	30 ml (2 tbsp)	38 ml (2½ tbsp)	45 ml (3 tbsp)
TOTAL	780 ml (25 oz)	970 ml (31 oz)	1120 ml (36 oz)

[3]Canned apple juice will probably cause less curdling than other types of juice because of its lower acidity.

[4]Adapted from "The Canadian Mother and Child" (Revised Edition), Department of National Health and Welfare, Ottawa. See ANNEX K, page 73 for metric conversion factors used.

The number of bottles into which the formula should be divided depends upon the number of bottles the infant is taking in 24 hours. Very young infants take five to seven bottles of smaller feedings per day; older infants may be taking four or five bottles of larger amounts.

4. *Bottles, Nipples, Caps*

If sufficient bottles of the type normally used are not available, a variety of shapes and sizes will have to be resorted to in emergency (e.g. soft drink, beer or medicine bottles). Nipples and caps must fit the type of bottle used. The best type of nipple to have on hand for emergency, therefore, is one that fits a narrow-necked bottle.

If nipples are in short supply, infants could be fed, if necessary, by sterile spoon. Older infants are often familiar enough with drinking from a cup to be fed that way. Disposable cups from a sealed package should be used.

As a substitute for caps, brown paper, aluminum foil or inverted paper cups, tied loosely with string or elastic bands, can be used.

5. *Equipment*

a. *For Handwashing*

— Hand basins or a convenient source of regular handwashing facilities
— Nail brush
— Soap (preferably dispensed)
— Towels (preferably disposable).

b. *For Washing Formula Preparation Equipment*

— A two-compartment sink or two large containers for washing and rinsing equipment
— Detergent
— Bottle brush
— Saucepan for boiling nipples.

c. *For Preparing Formula*

— Can opener
— Mixing bowls
— Measuring utensils
— Stirring spoon
— Tongs
— Funnel (or wax paper or aluminum foil shaped as a funnel)
— Strainer
— Masking tape and pencil (for labelling).

d. *For Processing Formula*

— Sterilizers or large covered pots, kettles or cans
— Racks or towels for bottom of sterilizers.

6. *Preparation Procedures*

In order to avoid contamination it is recommended that a different worker(s) be assigned to the washing procedures than those preparing the formula.

a. *Before Preparing Formula*

— Wash hands thoroughly with hot soapy water; scrub nails with a brush
— Rinse under running water if possible
— Use disposable towels or shake hands dry
— Clean finger nails

— Wear clean gown or apron
— Cover hair with cloth cap or hair net (fine mesh).

b. *Terminal Heating in Formula Bottles*

Terminal heating (boiling the formula in the bottles after the nipples and caps have been put on) is the best method to use in emergency as long as sufficient bottles, nipples and caps are available. The advantages are that sterile technique is not required throughout the operation, and the amount of handling after processing the milk mixture is reduced.

Use the following procedure:

— Wash utensils and bottles in hot water and detergent with a brush, and rinse in clear, hot water.
— Wash nipples, test for flow, then boil for five minutes.
— Place clean equipment on a clean cloth on a clean table.
— Wash tops of milk containers or cans before opening.
— Measure accurately and mix formula ingredients[5].
— Fill bottles with milk mixture using a funnel.
— Put nipples and caps on bottles (put caps on loosely to allow steam to circulate around nipples).
— Mark each bottle stating the day and hour of preparation and strength (i.e. according to the baby's weight as indicated in the SAMPLE FORMULAS FOR ONE DAY'S SUPPLY on page 64). Masking tape and black pencil seem to withstand processing. Do not use adhesive tape.
— Place filled bottles on a rack or towel in sterilizer or kettle and boil actively in covered water bath for 25 minutes with the water level slightly below milk level.
— Remove from sterilizer and cool quickly at room temperature.
— Tighten caps and store bottles in a refrigerator, or cool place[6].

IMPROVISATION

In an emergency some improvisation and substitutions may be necessary, such as the following:

— If utilities are affected, outdoor improvised facilities can be set up for washing equipment and processing formula[7].
— If bottles, nipples and caps are scarce it may be necessary to process the formula in larger containers, for example large bottles. Use the same procedure for preparation and the same processing time as for the individual bottle method. Pour individual feedings into previously sterilized bottles at each feeding time using a sterile funnel or sterile pouring cup. Put sterile nipples and caps on at the time of pouring.
— If refrigeration facilities are unavailable or limited, prepare small quantities of formula on a more or less continuous basis so they can be used quickly.
— If neither refrigeration nor other cool storage space are available, wrap cooled bottles of formula in wet newspapers, taking care that the paper does not dislodge the bottle caps.

[5] Always taste sugar to ensure that there is no error, for example that salt has not been substituted.
[6] Use within 24 hours — the sooner the better.
[7] See ANNEX F — The Construction and Use of Improvised Feeding Equipment, page 56.

— The usual practice of warming formula to body temperature before feeding the infant may not be possible in emergency. Safe, unwarmed formula will not harm healthy infants.

SOLID FOODS

Since it is difficult to keep older infants satisfied for very long periods on milk preparations alone, pre-cooked infant cereals should be available. They can be mixed with part of the infant's milk ration and given by sterile spoon.

If milk or infant cereals are not immediately available, infants must receive some liquid in order to prevent serious dehydration. Boiled water or sweetened liquids such as a thin water and sugar solution can be given, e.g. 5 millilitres (one teaspoon) sugar to 60 millilitres (about ¼ cup) water.

Other suitable foods are: canned or cooked meats, non-fatty fish, vegetables and fruits finely sieved and spoon fed, or a soft "pap" of bread, crackers or biscuits mixed with any safe liquid.

If emergency feeding of infants extends beyond one week, Vitamin C and Vitamin D supplements may be required. The Vitamin content of the formula should be taken into consideration when determining the dosage. Recommended intakes are 20 - 25 mg Vitamin C and 400 I.U. Vitamin D per day.

EMERGENCY SANITATION

It is essential that strict sanitary procedures be stressed at all times in emergency operations because workers will be rushed and under stress. Extreme care is required to prevent outbreaks of illness due to poor food handling practices. To ensure safe food, therefore, standards must be established and enforced concerning the following:

— sources of potable water;
— personal hygiene of workers;
— protection of food from contamination during storage, preparation, production, transportation and service;
— manual dishwashing;
— general cleanliness of food service areas;
— garbage disposal.

Institutions will already have well established sanitation standards for their regular day-to-day practices. In emergency, these would continue to be adhered to — but more rigidly. Advice should be obtained from local or regional health authorities when improvised or expanded food service operations are involved or if procedures, other than the usual, are required.

This ANNEX outlines recommended procedures under austere emergency conditions when professional advice may not be available.

PURIFICATION OF WATER[1]

Follow These Directions If It Is Necessary To Purify Water:

Boil for ten minutes

or

Treat water with any household bleaching solution containing hypochlorite such as concentrated javel water, or household iodine or water purification tablets. Quantities to be added to the water are given in the following table. The solution

Emergency Disinfection of Water

Litres of water	Dosage of Disinfecting Compounds		
CLEAR	Chlorine Bleach	Tincture of iodine (2½%)	Water Purification Tablets
	Drops	Drops	
4.5 litres (1 gallon)	4	20	8
CLOUDY			
4.5 litres (1 gallon)	10	40	16

[1] From "Family Health Planning for Disaster", Emergency Health Services Division, Department of National Health and Welfare, Ottawa.
See also "Environmental Health in Disaster", Emergency Health Services Division, Department of National Health and Welfare, Ottawa.

is added to the water, thoroughtly mixed and permitted to stand for 30 minutes. After this contact time, the water should have a slight chlorine or iodine taste. If this taste is not present, the dosage should be repeated and the water allowed to stand for 30 minutes before use.

PERSONAL HYGIENE OF FOOD WORKERS

- Wash hands thoroughly with soap and water before handling food and after using toilet facilities. Dispensed soap or detergents are preferable and more sanitary than bar soap. If running water is unavailable, use the following emergency procedures:
  - Wash hands in a container or hand basin with warm soapy water; scrub nails with a brush.
  - Rinse in clear water in a second container.
  - Use single-use drying devices or shake the hands dry.
  - If potable water is seriously restricted use a waterless hand cleanser.
- Do not permit persons with colds, open sores, cuts, pimples, or diarrhoea to handle food.
- Touch food with hands only when necessary; use forks or tongs.
- Clean, washable outer clothing and suitable hair covering should be worn by food workers.

PROTECTION OF FOOD FROM CONTAMINATION

- Gravies, sauces, meat and poultry stuffings; egg, poultry, meat and fish salads; creamed foods, milk, custards and cream fillings are easily contaminated foods and can be hazardous if refrigeration facilities are expected to be inadequate during the emergency period. These should be avoided.
- Keep all perishable foods refrigerated until cooked.
- Use separate tables or areas for preparation of cooked and uncooked foods, and for meat, poultry and fish.
- After cooking, serve food as soon as possible and keep hot on the serving line.
- If prepared food has to be transported to or from the institution, carry it in clean sanitized containers of a type manufactured for the purpose of carrying food.
- Avoid thickened foods if they have to be transported. In these situations prepare soups and stews without thickening.
- Label sandwiches indicating the kind and time of preparation. Serve within two hours or refrigerate.
- Clean and sanitize equipment and utensils used in food preparation, handling and storage according to acceptable procedures.
- Monitor tasting procedures. A utensil, once used for tasting food, must not be re-used unless sanitized in an approved manner.
- Where potable water in adequate amounts is not available, use disposable dishes and utensils.

MANUAL DISHWASHING

Mechanical dishwashers will be inoperable if institutional utilities are disrupted during emergencies. Plans must be made, therefore, for substitute manual dishwashing facilities where these are not already in existence. In some emergency

situations it may be desirable to further decentralize dishwashing operations and establish several areas using manual methods.

The water for dishwashing must be from a source approved by local health authorities and must be of a safe sanitary quality.

If water has to be transported, sanitary containers must be used as well as methods that prevent contamination during holding and dispensing.

1. *Manual Dishwashing Procedures with Adequate Potable Water*
   - — Scrape and rinse equipment and utensils before washing.
   - — Clean and sanitize in a three-compartment sink (or three large containers in some emergency situations).
   - — Wash with detergent and hot water of sufficient depth to cover utensils or equipment. Keep the water reasonably clean and maintain the detergent concentration according to the manufacturer's recommendation.
   - — Rinse in clean hot water.
   - — Sanitize by one of the following methods:
     - — Immerse for at least two minutes in clean hot water at a temperature of at least 77°C (170°F).
     - — Immerse for one-half minute in boiling water.
     - — Immerse for at least two minutes in a solution containing a disinfectant agent such as chlorine, iodine, quaternary ammonium compounds, or other approved chemical, at a strength recommended by the manufacturer.
   - — Use mesh baskets with handles for the rinsing and sanitizing process if improvisation is necessary.
   - — Air dry to prevent recontamination from drying towels.
2. *Procedures with Inadequate Potable Water*

   The following procedures are recommended for washing utensils *only* when extreme measures are required:
   - — Wash with detergent and hot water if possible. If not, wash in cold water with detergent or soap, using friction on all surfaces.
   - — Immerse for at least two minutes in a solution containing a disinfectant agent according to the instructions outlined in the previous section (Manual Dishwashing Procedures With Adequate Potable Water). If there is any doubt concerning the safety or quality of the water, immerse the utensils for at least two minutes in a solution of twice the minimum recommended strength.
   - — Allow utensils to air dry on a clean surface.

GENERAL CLEANLINESS

During emergency when food service operations will be difficult, staff and volunteers can easily develop careless habits. Every effort must be made to keep food service areas as clean and tidy as possible.

To maintain a satisfactory standard of cleanliness:

- — Keep all food service areas neat and free from rubbish and litter.
- — Clean floors using a material for controlling dust.
- — Maintain work surfaces clean to sight and touch and sanitize as often as necessary to maintain them in a sanitary condition.
- — Use mops that are of materials that can be easily sanitized.
- — Line garbage cans with plastic liners. Keep covered and remove frequently from food service areas. Clean and sanitize regularly.

GARBAGE DISPOSAL

If normal disposal services are interrupted in emergency, public health authorities must be consulted concerning acceptable methods of disposal for all institutional wastes. The following procedures are suggested for food service areas:

— Place food waste and wet garbage in leak-proof, non-absorptive, easily cleaned containers with tight fitting covers. Hold in a separate enclosed area until disposal can be carried out by an approved method.

— Incinerate dry waste and trash.

ADDITIONAL REFERENCES ON SANITATION AND FOOD SAFETY

1. The Sanitation Code for Canada's Foodservice Industry, Canadian Restaurant Association, Toronto, Ontario, 1973.
2. Guidelines For the Operation of the Department of Dietetics, Department of National Health and Welfare, Ottawa, 1974.
3. Publications of the Health Protection Branch, Department of National Health and Welfare, Ottawa (e.g. Pamphlets "Food Poisoning", "Food Safety — It's All in Your Hands").

ANNEX J

SPECIAL EMERGENCY EQUIPMENT

To assist communities and institutions meet food service problems generated by a large-scale disaster or national emergency, Emergency Welfare Services Division, Department of National Health and Welfare has developed and produced special emergency equipment, including Mobile Feeding Units. Some provinces also have produced their own similar or slightly modified units.

This equipment can be used to expand an institution's emergency feeding capability — either set up on adjacent grounds or as an auxiliary facility in a nearby building.

A Mobile Feeding Unit, basically, is a packaged, transportable kitchen — self-contained except for fuel, food and transport. It can be used for the preparation, production and serving of simple emergency-type meals to 200 persons per hour on a continuous basis, and is useful for limited periods of time when regular feeding facilities are unavailable or inadequate.

The Unit includes equipment and supplies for purifying and transporting water, starting fires, opening cans, preparing food, cooking, serving, eating, cleaning and sanitizing, and garbage disposal. A variety of fuels can be used; heating and cooking equipment consists of a "Soyer" cooker with three large pots. Sufficient disposable eating utensils are included for several hours of operation.[1]

In several emergency situations, institutions have found that parts of the Unit were useful (e.g. serving equipment and disposable utensils).

If required on a loan basis, requests should be directed to Provincial Emergency Welfare Services Directors in Provincial Departments of Social Services.

[1] Details concerning the contents and use of the Mobile Feeding Unit are contained in a Manual "Mobile Feeding Unit" available from Emergency Welfare Services Division, Department of National Health and Welfare, Ottawa.

METRIC CONVERSION FACTORS

To assist in understanding the metric values used throughout this handbook, the conversion system is as follows:[1]

30 grams	1 ounce (weight)
.453 kilograms	1 pound
or	
1 kilogram	2.2 pounds
31.2 millilitres	1 ounce (fluid)
5 millilitres	1 teaspoon
15 millilitres	1 tablespoon
250 millilitres	8 ounce cup
1.14 litres	1 quart
4.5 litres	1 gallon
2.54 centimetres	1 inch

[1] Adapted from information from the Metric Commission.